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Association of Military Surgeons of the United States

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THE MILITARY SURGEON

JOURNAL OF THE
ASSOCIATION OF MILITARY SURGEONS
OF THE UNITED STATES

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VOLUME XXIII.

CARLISLE, PENNSYLVANIA,
THE ASSOCIATION OF MILITARY SURGEONS.
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VOL. XXIII, No 1 JULY, 1908

THE MILITARY SURGEON

Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS EXPRESSED IN THEIR CONTRIBUTIONS.

THE GERMAN FIELD SANITARY REGULATIONS.

BY MAJOR PAUL F. STRAUB,
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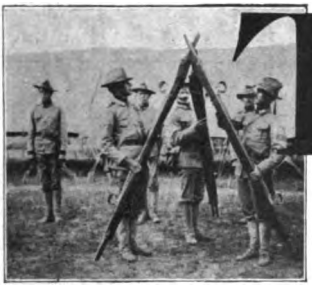

THE REVISED edition of the "German Field Sanitary Regulations" (*Kriegs Sanitätsordnung*), the first since 1878, recently published, under date of January 27, 1907, embodies the changes made necessary by the advances in military and sanitary science.

It is quite evident that the Germans have endeavored to profit by their experience in South-West Africa and from that of the Japanese in their recent war. This latter experience was, perhaps, of more value to them than to any other foreign service, for the reason that the Japanese sanitary organization was an adaptation of the German system. The defects and weaknesses

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of the old Regulations, as demonstrated in more recent campaigns, have presumably been corrected in this new edition; notably by an increase in the strength of sanitary organizations and in the materials and supplies furnished.

Greater authority has been granted administrative sanitary officers, and while it still leaves something to be desired, it indicates a growing tendency to allow them an authority commensurate with the responsibilities of their offices. Sanitary officers are required to "conduct their department in the manner contemplated in Regulations and not to attempt to avoid responsibility when questions of sanitation or the welfare of the sick are concerned; they must not let administrative methods obstruct prompt action in emergencies, provided, however, that *no military principles are violated.*" (Italics mine).

To one not thoroughly familiar with the German military system and organization, the Field Sanitary Regulations would convey the impression that the sanitary officers are charged with the fullest responsibility for the service of their respective departments without having been clearly given the corresponding authority. No sanitary officer who has the best interests of the service at heart would for a moment contend that his department should have any authority that could possibly conflict with the proper functions of the line; he only desires to have the necessary powers to direct the internal affairs of his department, which, on account of their technical character, can only be fully comprehended by medical men. It is only the very exceptional man who is able to rise above his experience and training and temporarily assume unaccustomed responsibility under the most trying conditions of battle, and it is, therefore, believed to be contrary to the best interests of a military institution that an officer who has an intimate knowledge of certain technical duties assigned to special organizations should in matters pertaining to his department alone and under ordinary circumstances be subordinated to others who have not the special qualifications, and, furthermore that he should remain comparatively free from authority and responsibility until some great emergency arises and then be forced into a sphere of action quite foreign to his training. The

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position of the sanitary department as regards responsibility and authority is quite clearly set forth in the regulation which attempts to define the relations between the senior sanitary officer and the commander of the sanitary company (who is not a medical man). It is quite evident that they were unable to draw a distinct line of demarkation between the authority of the company commander, on the one hand, and the chief surgeon "attached" to the company, on the other, as shown by a paragraph, which states that "regulations concerning the relations between the two, as far as the question of commanding is concerned, can only be formulated in a general way, and they shall work in harmony and be of mutual assistance." Such indefinite and divided responsibility may be quite possible in the German army, but would lead to conflict in our service greatly detrimental to the interests of the sick and wounded.

For the first time in the German service, a sanitary organization (headed by a division surgeon) has been instituted for a cavalry division. Provision is made for a sanitary echelon (sanitätsstaffel) for the purpose of organizing a cavalry dressing station. When an engagement is imminent, the sanitary echelon is formed by taking two-thirds of the regimental sanitary personnel (which has been increased), the divisional sanitary supply wagon, and a regimental supply wagon from each regiment. The remaining personnel and transportation remain with their units. This temporary organization establishes a dressing station for the cavalry division and performs the functions of a sanitary company.

ORGANIZATION.

The administrative head of the sanitary service of the armies in the field is the Chief of the Field Sanitary Service (Chef des Feld Sanitätswesens). His authority extends over all the sanitary personnel in the zone of operations and on the lines of communication; he is appointed by the Emperor, and is authorized to communicate direct with the War Department on all matters pertaining to the sanitary service.

A table giving the personnel and equipment of all the sanitary officers and of the various sanitary organizations is appended hereto.

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A chief surgeon is assigned to the headquarters of an army, a corps surgeon to an army corps, a division surgeon to a division, but no provision is made, as in our service, for a brigade surgeon. The former conduct the sanitary service in their commands, under the direction of their respective commanding generals, but in cases of emergency may issue orders affecting the sanitary personnel, reporting action to headquarters as soon as possible.

A consulting surgeon, selected from among the eminent professional men of the country, upon the recommendation of the chief surgeon of the army, is assigned to each army corps. His duties are purely professional and advisory and he has no administrative responsibility. The services of the consultant are at the disposition of the chief surgeon of the army and of the corps surgeon; his sphere of action is limited almost entirely to the established hospitals of the army in the field, which he is to visit frequently, and to the dressing stations.

The division surgeon of an infantry division is the administrative head of the sanitary service of that organization. When an engagement is in prospect he must ascertain the best localities for the dressing stations and field hospitals, with due regard to the instructions of the corps surgeon and to the special military situation, as communicated to him by the division commander. He is placed in a most responsible position being, perhaps, the most important administrative sanitary officer in the field. During battle his position is with the division staff, although he must take advantage of every opportunity to personally direct and regulate the service of any of the divisional sanitary organizations.

An infantry battalion (1,000 men) is allowed two medical officers, two sanitary soldiers, and sixteen bearers made noncombatants for the first time and wearing the Geneva Cross. The latter are instructed in first aid and bearer service and when troops go into action are assembled in rear of the battalion, where as soon as an aid station is established, they lay aside their packs and proceed to render first aid and transport wounded, for which purpose they are supplied with Hospital Corps pouches and lit-

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ters. Provision is also made for the use of musicians as "assistant bearers"—they, however, do not wear the red cross but simply a red brassard.

A sanitary battalion of three companies, comprising 942 officers and men, is attached to each army corps. It is to be noted that twenty-four of the twenty-seven sanitary officers of the battalion are attached to companies, but are not under the command of the company commander. The chief surgeon attached to each sanitary company is not required to forward his reports and communications through the commanding officer of the company, and the company commander is required to keep him informed "of the tactical situation and of all orders he may receive that may affect the sanitary service." The battalion is directly under corps headquarters, but companies may be assigned to a division and thus come under the direction of the division surgeon. Each company is under the command of a captain (not a sanitary officer) and attached thereto, but not under the command of the captain, is a chief surgeon with seven assistants. When the company goes into action the chief surgeon becomes responsible for the service, and the captain of the company is placed under his orders. During the intervals, however, it would seem that the captain is the responsible head.

The various drills and courses of instruction for the company are conducted by the lieutenants (not sanitary officers), and the regulations demand that the chief surgeon shall be present thereat whenever, in his opinion, it is necessary, in order to supervise such instruction, but he is not permitted to make corrections or suggest alterations except through the medium of the company commander. Each company has 208 bearers, under charge of sixteen lance corporals (Gefreïte,) and its function is to establish dressing stations and transport the wounded from the battlefield and aid stations to the dressing stations and field hospitals.

Twelve field hospitals are allowed each army corps, each hospital having a capacity of 200 beds, which may be enlarged by taking advantage of the resources of the locality. Each is commanded by a chief surgeon who has the disciplinary authority of a company commander over the hospital personnel and non-com-

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missioned officers and men under treatment therein; and he is authorized to deal directly with the authorities on the lines of communication anent the evacuation of the sick and wounded.

The chief surgeon of the lines of communication (Etappenarzt) is held responsible for the sanitary service in his district, and performs his duties under the direction of the general commanding the lines of communication and the chief surgeon of the army. He is responsible for the reception, care, and further transportation of the sick and wounded of the army in the field, the evacuation of field hospitals, the organization and service of the various sanitary institutions located on the lines of communication, and the establishment of other institutions, such as hospitals for the insane and infectious diseases. He is also required to see that the troops of the sanitary organizations are properly resupplied.

A consulting hygienist is added to the personnel of the etappe, for the service of the sanitation of the etappe zone, whose position, rank, and pay are similar to those of the consulting surgeon. His duties are also purely professional and he has nothing to do with administrative matters. His principal function is in connection with the prevention of infectious diseases; he investigates the origin and spread of epidemics and advises as to the proper course to pursue in regard to them.

The war hospital director assists the etappe surgeon in the organization and control of the hospitals, and the evacuation of the sick within his zone. One is allowed to each army corps, and he is especially charged with the duty of speedily evacuating the field hospitals, and with the distribution of the sick and wounded. The etappe surgeon is his immediate superior, and under him is all the sanitary personnel of the lines of communication. He is also the head of the "war hospital detachment," consisting of 123 officers and men, of which nineteen are sanitary officers. This detachment corresponds to our stationary hospital organization and practically performs the same duties. The sanitary officers are taken from the active or reserve list, and, if this is impracticable, civilian physicians under contract will be

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employed. The senior sanitary officer commands the detachment. The most important function of this organization is to relieve field hospitals, that the latter may speedily be put in readiness to again accompany their unit.

A transport detachment (Kranken-transport Abtheilung) is allowed to each special line of communications (Etappe Inspection) and is for the purpose of transporting patients by trains, boats, field railways, wagons, etc., and to provide for their shelter, food, and other necessary care while they are in transit. A chief surgeon is in command of the detachment, and has the disciplinary authority of a company commander. From the railway etappe stations patients may be further transported by hospital and supplementary hospital trains and by "trains for the transportation of sick." The hospital trains proper are the only ones which have a fixed personnel. The supplementary hospital trains and the trains for the transportion of the sick are temporary institutions and the necessary personnel is taken from the transport detachments.

The organization of the volunteer aid service in time of war is also given, and it is quite evident that they depend upon this organization for much of the hospital and medical service of the rear. Their units are organized in time of peace; every individual instructed in the duties that will be expected of him in active service, materials and supplies accumulated and stored, and the organization presumably is always in readiness for active service.

SANITARY SERVICE WITH TROOPS.

Patients whose sickness is expected to be of short duration are, if possible, carried along with the columns. Such as can not be taken along, those who will presumably continue ill for some time, or whose condition will not permit transportation, are turned over to the troops on the line of communications. Seriously sick are to be sent to the nearest military hospital, and if such institutions are not accessible, they are transferred to civil hospitals, or in case of extreme necessity, are turned over to the local civil authorities for cure and treatment.

The ambulances of the sanitary organizations may be used

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to such an extent as, in the opinion of the commanding officer of the company or the chief surgeon of the field hospital, circumstances permit. Sanitary organizations must, however, be ready at all times for immediate service when in the presence of the enemy.

"Collecting stations" will be designated at points within the territory occupied, for the sick of large bodies of troops, who will be sent from their respective organizations at a designated time. Personnel and supplies from the regimental sanitary detachments will be assigned to such stations and, in case of necessity, a section of a sanitary company or of a field hospital may be detailed thereto. These stations are to be in operation for only a very short period—a few hours at a time—and are to be evacuated as soon as arrangements can be made for the transportation and care of the sick by the etappe authority.

If troops remain in a locality any length of time, the sanitary service will approximate that of peace service. Cantonment infirmaries (Ortskrankenstuben), for the care of sick in quarters, will be provided as may be necessary. Cantonment hospitals will also be established under similar conditions, for the treatment of the more serious cases. The personnel and material for such institutions will be taken from the regimental detachment and supplies.

Aid stations will be established whenever considerable losses occur. Each battalion may establish its own station, but this is not considered advisable if the battalion is part of a large command, as a large number of aid stations would embarrass the work of transporting wounded to dressing and collecting stations for slightly wounded and to field hospitals, and would increase the difficulty of keeping in contact with their respective units. It is, therefore, desirable that each regiment should have only one aid station, and, if conditions permit, it would be of advantage to unite the aid stations of several regiments. The possible combination of the aid station with the dressing station should always be kept in mind. The aid station should be protected from rifle fire, and if possible from artillery fire. It must be as near as practicable to the firing line and of convenient access thereto.

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Before going into action the company bearers of each company of infantry, and other foot troops, are assembled at the rear of the organization and ordered to proceed to the infantry sanitary supply wagon. As soon as an aid station is established they lay aside their packs and are furnished with litters and pouches that they may rapidly bring in the wounded.

Wounded who are able to march will receive such simple protective dressings at the aid station as may be necessary, and will march in detachments under the senior present, to a collecting station for slightly wounded or, in exceptional cases, direct to the nearest etappe station. Wounded who are unable to march will be conveyed from the aid station as rapidly as possible, and, if practicable, direct to the field hospital.

A dressing station is established by order of the division commander, upon recommendation of the division surgeon. In case of emergency, the division surgeon will give the necessary orders and report action to his commander. Dressing stations will not as a rule be established until the engagement has developed to such an extent that the work of the sanitary company can be carried on at not too great a distance from the field of losses. The dressing station will be protected from rifle and artillery fire, and should be accessible from one or more roads-buildings; a good place for cook fires, and a water supply are desirable.

It is for the commanding officer of the sanitary company to decide if the ambulances shall proceed to the field of losses or if an ambulance station shall be established at the nearest point thereto. The chief surgeon of the sanitary company determines whether the personnel employed on the battlefield is sufficient for the service; he directs the service at the dressing station, makes provision for the nourishment, temporary shelter of patients, and for their ultimate evacuation to the rear. The dressing station is organized, under direction of the chief surgeon, as follows:

1. Place for packs of bearers—which is placed in charge of a trumpeter.
2. Entrance and exit for ambulances.
3. Unloading place for wounded, and a place for their equipment—in charge of a sanitary non-commissioned officer.

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4. Receiving department—sanitary officer in charge.

5. Dressing department—sanitary officer in charge.

6. Waiting place for wounded that are able to march—in charge of the senior present among them.

7. Waiting place for wounded able to bear transportation and whose wounds have been dressed—a sanitary non-commissioned officer in charge,

8. Waiting place for wounded not able to bear transportation and whose wounds have been dressed—a sanitary non-commissioned officer in charge.

9. A place for the dying—a sanitary non-commissioned officer in charge.

10. Place for the dead.

11. Kitchen.

12. Wagon park (wagons, horses and train personnel) where wagons will also be prepared for carrying wounded.

13. Latrines.

The wounded are classified as follows:

1. Wounded who are able to march—distinguished by a white diagnosis tag.

2. Wounded who are able to bear transportation and who need hospital treatment—distinguished by a white diagnosis tag with a red border on one side.

3. Wounded who can not stand transportation, such as patients with abdominal wounds who can be carried only a short distance at most,—distinguished by a white diagnosis tag with two red borders.

Surgeons are cautioned that the examination of wounds is to be restricted as much as possible, and that the cleansing of the wound and the surrounding integument is to be limited to what is absolutely essential. It is also distinctly brought out that the character of the surgical aid will depend upon the number of wounded, the distance of the field hospital destined to receive them, the kind, character, and sufficiency of the transportation and other conditions which may affect the service; and that the demands of the individual may have to be sacrificed to some extent to the necessity for dressing and sheltering all the wounded on the day of battle. The greater the number of wounded the less time can be devoted to the individual case.

Provision is also made for the employment of the sanitary companies during the periods of inactivity, when there is no apparent possibility of their service being required on the battle-

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field, by authorizing their assignment to hospital duty or in connection with the transportion of the sick to the rear, etc.

"Collecting stations" for slightly wounded are for the purpose of relieving the dressing stations of the wounded that are able to march, and to serve as an intermediary station to the etappe station. They must be located far enough in the rear, but must still be within reach of all the troops at the front and so placed as not to interfere with the movements of troops and trains. It is also distinctly provided that the collecting stations for slightly wounded shall not be established near field hospitals —presumably to avoid the danger of the latter being overrun with slightly wounded who may clamor for admission, as after a severe engagement the capacity of the field hospitals will undoubtedly be taxed to the utmost to provide temporary care and shelter for the severely wounded. From the collecting stations the wounded will be returned to their regiments or sent to the rear, as the character of their injuries may indicate.

The field hospitals receive wounded that require transportation from dressing stations or directly from the field of battle, and they will be treated in these institutions only so long as may be necessary to arrange for their further transportation to the rear, unless their condition precludes this. The personnel and supplies pertaining to the field hospitals which are not established may be temporarily assigned to reinforce aid, dressing, and slightly wounded stations, as it is not considered advisable to weaken the regimental detachments by withdrawing men for such service.

SERVICE OF THE REAR.

Ample provision is made on the lines of communication for sanitation and the important service of the care of the sick and wounded including their further transportation to the rear.

War hospitals, which correspond to our stationary hospitals, are under the direction of the chief surgeon, and it is their important function to receive the patients of established field hospitals that the latter may again be made ready to accompany their units, after having been resupplied from the etappe sanitary supply depot.

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Etappe hospitals are established at the headquarters of the lines of communications, and at such other stations as may be necessary to receive patients from the etappe troops and other organizations passing through the zone. Such hospitals are of especial importance at points where large numbers of wounded may be expected should a very severe engagement take place and the capacity of the field hospitals with the troops be insufficient. If necessary personnel is not available for such institutions, application to higher authority will be made for sanitary officers and civilian physicians. Other personnel, if it can not be supplied by the local population, will be taken from the volunteer aid organization. Only regular, ex-regular or reserve sanitary officers will be assigned as chief surgeons of these hospitals. Should none of the above mentioned classes be available a commission consisting of an officer and a civilian physician is put in charge.

Infirmary sections are provided for the care of slightly sick and wounded and are usually established in connection with the etappe or other hospitals. From the regulations governing the service of the infirmary sections, it appears that they are for the purpose of taking care of that class of patients we are accustomed to treat in "quarters."

Patients who have recovered, but who are not yet strong enough for duty at the front, will be organized in convalescent detachments and will be assigned such duty in the service of the rear as their physical condition will permit.

The fact that the success of the sanitary service at the front depends very much upon the rapidity of the evacuation of the sick and wounded is strongly emphasized. The sick whose recovery will presumably require considerable time will be sent home whenever their condition permits of transportation.

The highly important transport service in the etappe zone is carried on by the "sick transport detachment" which makes the necessary preparations for the transfer of patients on roads, railroads, waterways, and field railways, and also provides shelter, care, and treatment while en route. "Bandaging, refreshment places" and "collecting places for the sick" are selected at va-

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rious points along the lines of communication, and the sanitary personnel thereof is supplied from the sick transportation detachments. At the bandaging and refreshment places the wounded will be classified in accordance with the kind of transportation they may require. Those that cannot be transported will be turned over to the nearest hospital—the remainder to the collecting place for sick. This latter station is solely for the purpose of furnishing temporary shelter for patients who are to be sent to the rear, and for this purpose buildings will be provided and supplied with the necessary conveniences for quartering them. These places may also be used for the slightly sick of troops en route. Whenever the personnel of the sick transport detachments is insufficient for the service at these stations the volunteer aid societies will be drawn upon for additional men. As a rule the sick transport detachments will not be assigned to accompany patients on trains or ships, as this function pertains to the "escort sections" of the volunteer aid societies and hired civilians. Patients who are to be sent to the rear are to be assembled at etappe stations located on railroads or waterways and will be transported to such assembling points in the ambulances of the field hospitals and other available army wagons or by wagons collected in the district. Sanitary supply wagons, returning empty from the etappe sanitary supply department, are especially convenient for this purpose, and, by authority of the corps commander, the vehicles of the provision or baggage trains returning to the depot may be used, but they shall not be required to proceed farther than their objective point; nor shall they be used to transport patients with infectious diseases. Provision is also made for the use of wagons and ambulances furnished by volunteer aid societies.

Hospital trains are formal organizations with a permanent personnel and are prepared and organized in time of peace. In case of mobilization the proper number of trains is put in readiness and reported to the chief of the sanitary service in the field who assigns them to etappe districts.

Hospital and supplementary hospital ships and "ships for the transportation of sick" are provided for the transportation

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of sick on waterways. The first two are intended exclusively for the transportation of bed patients, but the latter require no special fitting up, the ordinary accommodations for passengers being considered sufficient. The hospital ships are equipped in accordance with prescribed plans and are considered permanent units. The supplementary hospital ships are only for temporary use and at the conclusion of the trip are made ready for ordinary service. Hospital ships or fleets of hospital ships are commanded by a chief surgeon.

With the exception of those in fortresses all garrisoned hospitals become "reserve hospitals" when the army is mobilized. These correspond to our general hospitals and fulfill the same functions. In addition to the transformed garrison hospitals, others are established in suitable buildings, barracks, or in tents. The necesssary preparations are made in time of peace, so that ten days after mobilization a part of them will be ready for the reception of patients. "Reserve hospitals" are under charge of a chief surgeon, but should a sanitary officer not be available a "hospital commission," consisting of an officer and a civilian physician, is put in control. Two or three surgeons are allowed for every 100 patients, and one apothecary for every 200. If no sanitary officer of the reserve can be secured civilians will be employed under contract already made in time of peace.

Advantage is taken of the opportunity in reserve hospitals for training male military nurses, and as soon as they become proficient all in excess of the needs of the hospitals are sent to the front. Government employment agencies are established in the larger cities for the purpose of securing nurses, and if the number obtained in addition to those furnished by the aid societies is not sufficient, the local authorities are empowered to employ help.

The chief of the field sanitary service assigns patients, returning from the front, to the reserve hospitals, the number of vacant beds therein being reported to him from time to time.

If a number of reserve hospitals are located in one place, a senior sanitary officer may be placed in charge as reserve hospital director.

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SUPPLIES.

An etappe sanitary supply depot is established on each special line of communications. These depots contain all materials and supplies for war, etappe, and infectious disease hospitals; for fitting up supplementary hospital trains, and the supplies for sanitary organizations serving with troops. Mobile x-ray apparatus, mobile water sterilizers, tents, etc., are also kept on hand for use in the zone of operations and on the lines of communication.

Interesting chapters on military hygiene are also included in the Kriegs Sanitätsordnung, which contain the most advanced ideas on this very important subject in a most concise and practical way. Special chapters are devoted to the subjects of food, drinks, clothing, personal hygiene, the hygiene of marches, camps, and the battlefield, and the prevention of the spread of infectious diseases. A special chapter is also devoted to the subject of disinfection and disposal of wastes. It is not possible to give a synopsis of the above mentioned section of the Kriegs Sanitätsordnung and keep this paper within proper limits, and a discussion thereof is reserved for another article.

The appendix to the Kriegs Sanitätsordnung forms by far the larger part of the publication. It gives supply tables; directions for the chemical and bacteriological examinations of water; hygienic rules to be observed in the selection of hospital sites and for their management; forms for reports and returns; improvisation of apparatus and appliances; methods of accounting; purchase and distribution of supplies, etc., etc.

A general plan showing the relative locations of the various sanitary institutions in the zone of operations and on the lines of communication is appended, and gives an idea of the highly organized and complicated system. One is impressed with the fact that such intricate schemes could be carried out only with an exceptionally well disciplined body of men. The general principles laid down are in conformity with those of all up-to-date armies but go more deeply into details, at the same time considerable latitude is allowed to administrative officers and no hard and fast lines are drawn that could interfere with the service in case of

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emergency. All in all, these Regulations present the most modern and advanced ideas upon the operations of the sanitary department of an army in war.

PERSONNEL AND EQUIPMENT FOR THE SANITARY SERVICE IN THE FIELD.

1. OFFICE OF THE CHIEF OF THE FIELD SANITARY SERVICE.

1 chief of Field Sanitary Service (Generalstabsarzt).
2 sanitary officers (Oberstabsarzte).
1 sanitary officer (Stabsarzt).
2 field intendant secretaries.
4 sanitary non-commissioned officers.
8 train soldiers.
10 saddle and 2 draft horses.
1 two-horse vehicle.
1 operating case (Truppenbesteck).
1 sanitary chest.

2. HEADQUARTERS OF AN ARMY.

1 chief surgeon (Generalarzt).
1 staff surgeon.
1 assistant surgeon.
2 sanitary non-commissioned officers.
4 train soldiers.
4 saddle, 2 draft horses.
1 two-horse vehicle.
1 operating case (Truppenbesteck).
1 sanitary chest.

3. HEADQUARTERS OF AN ARMY CORPS.

1 corps surgeon (Generalarzt).
1 hygienist (superior staff or staff surgeon).
1 assistant surgeon.
1 corps staff apothecary.
2 sanitary non-commissioned officers.
5 train soldiers.
5 saddle and 2 draft animals.
1 operating case (Truppenbesteck).
1 sanitary chest.
1 microscope.
1 bacteriological chest.
1 large reagent chest.

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4. OFFICE OF CONSULTING SURGEON.

1 consulting surgeon (Generalarzt, Generaloberarzt, Oberstabarzt).
1 assistant surgeon.
1 sanitary non-commissioned officer.
3 train soldiers.
3 saddle, 2 draft horses.
1 two-horse vehicle.
1 large operating case (Hauptbesteck).

5. HEADQUARTERS OF A DIVISION.

1 division surgeon (Generaloberarzt).
1 assistant surgeon.
1 sanitary non-commissioned officer.
2 train soldiers.
3 saddle horses.

6. HEADQUARTERS OF A CAVALRY DIVISION.

1 division surgeon (Generaloberarzt).
1 mounted sanitary non-commissioned officer.
4 train soldiers.
3 saddle, 6 draft horses.
1 six-horse sanitary supply wagon.

7. SANITARY BATTALION STAFF.

1 battalion commander.
1 adjutant (lieutenant).
1 non-commissioned officer (clerk).
5 lance corporals (Gefreite) (bicyclists, 3 orderlies).
4 train soldiers.
9 saddle, 2 draft horses.
1 two-horse staff pack wagon.

8. SANITARY COMPANY.

1 commanding officer.
2 lieutenants.
1 assistant surgeon.
1 apothecary.
1 paymaster.
1 first sergeant.
1 vice first sergeant.
4 sergeants.
14 non-commissioned officers.
16 lance corporals (Gefreite).
208 bearers—includes { 2 musicians, 1 tailor, 1 shoemaker, 1 wheelwright, 2 blacksmiths.
1 lance corporal (Gefreiter, bicyclist).

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2 sanitary vice first sergeants or sergeants.
7 sanitary non-commissioned officers, including 1 mounted.
8 military nurses.
1 train sergeant.
2 train non-commissioned officers.
3 train lance corporals (Gefreite).
28 train soldiers—8 of whom as grooms for horses of sanitary officers.
12 saddle and 28 draft horses.
8 two-horse ambulance wagons, each provided with 7 or 9 litters and dressing pouches.
2 two-horse sanitary wagons.
2 two-horse pack wagons, each with a tent.
1 two-horse commissary wagon.

Attached—

1 chief surgeon (Oberstabsarzt).
2 staff surgeons.
5 assistant surgeons.
9 saddle horses.

9. FIELD HOSPITAL AND RESERVE FIELD HOSPITAL.

1 chief surgeon (Oberstabsarzt).
1 staff surgeon.
4 assistant surgeons.
1 apothecary.
2 field hospital inspectors.
1 sergeant, for police duty.
1 non-commissioned officer, as clerk.
1 non-commissioned officer, in charge of quarters.
1 lance corporal (Gefreiter, bicyclist).
2 privates (kitchen and dispensary).
3 sanitary vice first sergeants or sergeants (ward masters).
6 sanitary non-commissioned officers.
14 military nurses.
1 train sergeant.
1 train musician.
1 train lance corporal (Gefreiter).
18 (19) train soldiers.
9 saddle, 18 (20) draft horses.
1 two-horse ambulance wagon, with 7 or 9 litters and pouches of dressings.
2 two-horse sanitary wagons.
1 two-horse sanitary wagon.
4 two-horse wagons for hospital appliances.
1 two-horse wagon for officials.

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10. THE ETAPPE.

(For each etappe inspector's district).

1 etappe surgeon (Generalarzt).
1 assistant surgeon.
1 corps apothecary.
1 sanitary non-commissioned officer.
4 train soldiers.
3 saddle, 2 draft horses.
1 two-horse vehicle.
1 sanitary chest.
1 large reagent chest.

11. OFFICE OF THE CONSULTING HYGIENIST.

(One for each eteppe inspector's district).

1 consulting hygienist (Generalarzt, Generaloberarzt, Oberstabsarzt).
1 sanitary non-commissioned officer.
2 train soldiers.
2 saddle, 2 draft horses.
1 two-horse vehicle.
2 microscopes.
1 bacteriological chest.
1 portable bacteriological laboratory.

12. OFFICE OF THE WAR HOSPITAL DIRECTORY.

(Number according to the number of army corps).

1 war hospital director (Generaloberarzt, Oberstabsarzt).
1 assistant surgeon.
1 sanitary non-commissioned officer.
2 train soldiers.
3 saddle horses.

13. WAR HOSPITAL DETACHMENTS.

(Number according to the number of army corps).

4 superior staff surgeons.
6 staff surgeons.
9 assistant surgeons.
1 dentist.
3 apothecaries.
6 field hospital inspectors.
3 non-commissioned officers (clerks).
3 privates (cooks).
9 sanitary vice first sergeants or sergeants (ward masters).
18 sanitary non-commissioned officers.
36 military nurses.
26 train soldiers.
1 dental chest.

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14. WAR HOSPITAL.

1 chief surgeon (Oberstabsarzt, Stabsarzt).
Ward and assistant surgeons (sanitary officers from war hospital detachments and civilian physicians under contract).
Apothecaries, administrative officials (apothecaries and field hospital inspectors of the war hospital detachments, or civilians under contract).
Inferior personnel (enlisted sanitary personnel, military nurses of the war hospital detachments, or hospital sections of volunteer societies).
Appliances are obtained at the place or supplied from etappe sanitary supply depots.

15. ETAPPE HOSPITALS.

1 chief surgeon (regular or ex-regular, reserve or ex-reserve sanitary officer), or a Hospital Commission (1 officer and a civilian surgeon).
Ward and assistant surgeons (civilians).
Inferior personnel (from the hospital section of the volunteer aid service—civilians).
Appliances as in paragraph 14.

16. INFIRMARY SECTIONS.

1 chief surgeon (only when the section is not attached to a hospital) as provided in paragraph 15, but under certain conditions he may be taken from a war hospital detachment).
Personnel (from war hospital detachments, hospital section of the volunteer aid or civilians).

17. SICK TRANSPORT DETACHMENTS.

(One for each etappe inspector's district).

(Bandaging, refreshment, and collecting places for sick).
1 chief surgeon (Oberstabsarzt).
1 staff surgeon.
4 assistant surgeons.
1 field hospital inspector.
1 sergeant for police duty.
2 sanitary vice first sergeants or sergeants (ward masters).
4 sanitary non-commissioned officers.
8 military nurses.
8 train soldiers.
Appliances as in paragraph 14.

18. HOSPITAL TRAIN.

1 chief surgeon (Oberstabsarzt).
3 assistant surgeons.
1 field hospital inspector

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1 lance corporal (Gefreiter) artificer.
4 privates (2 cooks and 2 cooks' police).
5 sanitary vice first sergeants or sergeants.
11 sanitary non-commissioned officers.
16 military nurses.
5 train soldiers.
Railway personnel (engineers, firemen, etc).
24 hospital cars, each 12 berths
1 hospital car for officers, 8 berths } 296 berths.
1 car for chief surgeon.
1 car for surgeons.
2 cars for personnel.
1 car for dispensary and offices.
2 cars for kitchens.
3 cars with boilers for heating.
2 cars reserve supplies.
1 car supplies.
1 car baggage.

19. HOSPITAL SHIP.

(Fleet of Hospital Ships).

1 chief surgeon.
Other personnel and supplies as provided elsewhere.

20. SUPPLEMENTARY HOSPITAL TRAIN, SUPPLEMENTARY HOSPITAL SHIPS, SUPPLEMENTARY HOSPITAL SHIP FLEET.

1 surgeon in charge.
Other personnel and supplies as needed.

21. TRAIN FOR TRANSPORTATION OF SICK, SHIP FOR TRANSPORTATION OF SICK.

1 military escort, including a non-commissioned officer as conductor.
2 field police.
Other personnel and appliances as needed.

22. ETAPPE SANITARY SUPPLY DEPOT.

(One for each etappe inspector's district).

1 commanding officer (lieutenant).
1 lieutenant.
1 staff apothecary.
5 apothecaries.
3 field hospital inspectors.
4 non-commissioned officers (clerks).
8 non-commissioned officers (overseers).
6 instrument makers (inferior officials).
1 sergeant conductor,
1 train non-commissioned officer,
32 train soldiers,
2 saddle and 48 draft horses,
24 two-horse supply wagons. } Train column.

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1 mounted vice first sergeant, sergeant or non-commissioned officer.
1 sanitary lance corporal (Gefreiter).
1 mechanic (inferior official).
2 train soldiers.
1 saddle horse.
4 draft horses.
} For each field X-ray apparatus.

1 private (machinist or artificer).
1 train soldier.
2 draft horses.
} For each water sterilizer.

Four-horse field X-ray wagon, Two-horse water sterilizer. } Number in accordance with number of army corps.

23. FREIGHT DEPOT AT THE ASSEMBLY POST. (Sammelstation).

1 staff apothecary.
2 field hospital inspectors.
4 sanitary vice first sergeants or sergeants.
10 non-commissioned officers.
3 train soldiers.
Equipment—

24. ACTING CORPS SURGEON.
(Sanitary Office.)

As in time of peace.
Supplies as needed.

25. RESERVE HOSPITAL DIRECTOR.

1 reserve hospital director (Generaloberarzt, Oberstabsarzt or civilian surgeon under contract).
1 sanitary non-commissioned officer.

26. RESERVE HOSPITAL.

1 chief surgeon or a hospital commission (1 officer and 1 civilian surgeon).
Other personnel and supplies as provided elsewhere.

27. CENTRAL REGISTRY OFFICER OF THE PRUSSIAN WAR MINISTRY.

1 chief of division (regimental commander).
1 staff officer.
2 captains.
1 superior staff surgeon or 1 staff surgeon.
2 staff surgeons.
1 accountant official.
} Registrars and Assistant Registrars.

1 captain, assistant to chief of division.
37 secretaries.
5 registrars.
133 non-commissioned officers.
2 sanitary non-commissioned officers.
} Clerks.
5 messengers.
And in addition thereto two members of volunteer aid societies.

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SERVICE, DELEGATES, AND PERSONNEL OF THE VOLUNTEER AID SOCIETIES.

28. THE IMPERIAL COMMISSIONER AND INSPECTOR OF THE VOLUNTEER AID SOCIETIES.

1 delegate general, as his representative at a distant field of operations.

29. DELEGATES AND PERSONNEL IN THE ETAPPE.

1 etappe delegate (with the etappe inspector).

1 delegate with the war hospital director (at the head of a hospital section.)

Sub-delegates with the sick transport detachments at the etappe headquarters station and at the assembly post. (Sammelstation).

1 depot section. (Dopottruppe) 28 men from the depots of the volunteer aid societies at assembly posts and etappe headquarters stations, and, if needed, also at the etappe stations.

1 Hospital Section (Lazarettrupp).
28 male nurses, 25 female nurses, 4 cooks.
1 section assigned to each war hospital detachment.

1 Transport Section—112 men are assigned to etappe sanitary supply depot or to the sick transport detachments as may be needed, for the transfer of sick from the advanced war and etappe hospitals to the main etappe station and transfers within the etappe district.

1 Escort Section—112 male nurses, 20 female nurses, to care for sick en route by rail or water to the reserve hospitals; also to bandaging and refreshment places at the collecting place for sick.

GUNSHOT FRACTURES.

IN *Der Militaerarzt*, Kerchenberger discusses observations of gunshot fractures. He made experiments with a Flobert's smooth bored gun and a Flobert rifle. He shot at green wood and at the diaphysis of various bones. His results were not uniform but he concludes that the guns produced numberless radial fissures. He illustrates the results of his experiments with several figures.—F. J. CONZELMANN.

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AN IMPROVISED LITTER ON HORSEBACK.

By CAPTAIN FRANK T. WOODBURY,

MEDICAL CORPS UNITED STATES ARMY.

THE necessity of extemporising suitable apparatus out of materials as they may come to hand is nowhere more evident than in the Hospital Corps serving with our army. At its best it is always dependent upon another department for its transportation and equipment, which in the knowledge of the writer have never in the history of the army been supplied as contemplated by existing regulations, and at its worst it must make bricks without straw, using anything obtainable and converting it to the uses of the care and comfort of the wounded and injured.

The writer presents herewith a description and photographs of a litter on horse back made from three poles and the equipment of a mounted soldier.

This litter won the prize at the Philippines Division Athletic Meet held in Manila from January 13th to 18th, 1908, being demonstrated by a squad from Camp Joseman, Island of Guimaras, representing the Department of the Visayas. The litter presents the following essential and fundamental features. It can be made anywhere that poles can be cut (the Hospital Soldier carries a heavy knife or bolo for chopping purposes) and requires no other materials than are to be found on a horse saddled for field service, as it is fastened by four coat straps and the stirrup leathers and braced by a stick between the front poles fastened by the surcingle, and the bed of the litter is the shelter tent half, secured by the shelter tent rope. It is absolutely secure, will not shake loose, shift out of the median line, tilt, slide nor bump the patient even at a trot which was demonstrated by a test made by the Division Chief Surgeon. It does not irritate the horse in any way which is an important feature especially with a nervous horse or a badly wounded man.

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The litter is made as follows:—Two poles six feet long, or for quick measurement, five bolo lengths, and two short pieces twenty-eight inches or one and three-quarters bolo lengths. The two short poles are crossed like the letter "X" in the seat of the saddle. They are notched at the center where they cross and at the ends where they receive the side pieces, which are made secure by the four coat straps from the cantle and pommel of the saddle which are wrapped twice around and buckled tightly.

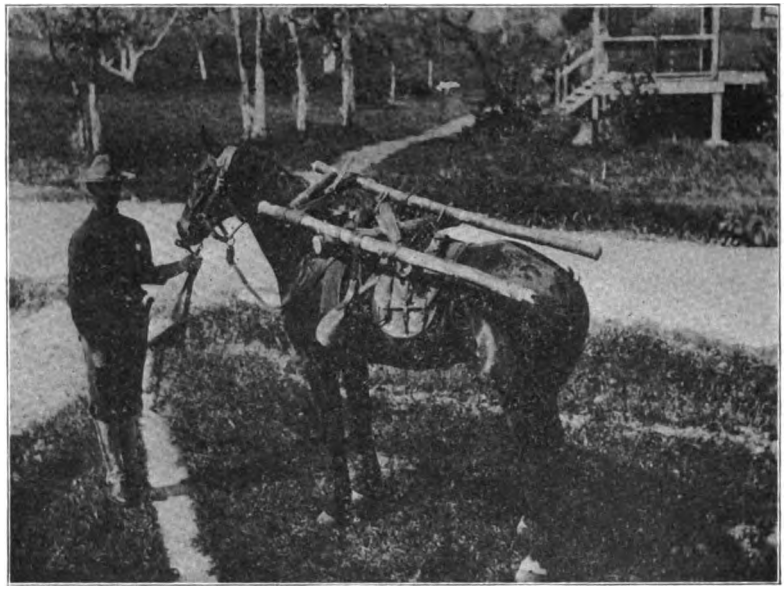

Fig. 1. Extemporized Mounted Litter for one Patient.

This makes the four pieces of wood into a stiff frame and secures it to the saddle. The stirrup straps are then unbuckled and pulled out of the keepers, the tongue end is then passed through the cincha ring upward and wound twice around the side poles and buckled. In tightening these straps the framework is adjusted to a level and it becomes part of the saddle being held to it by the cincha through the stirrup straps. To prevent the front poles from approaching, a third short piece is wedged be-

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tween them and secured by the surcingle wound about the poles and buckled. So far we have not used any of the soldier's equipment proper, and we have two coat straps to spare. This is shown in the first illustration. The soldier's pack is now unrolled, the blanket folded and tucked in over the cross poles in the seat to make a padding. The shelter tent half is then stretched over the poles, the rope end forward. The corners in

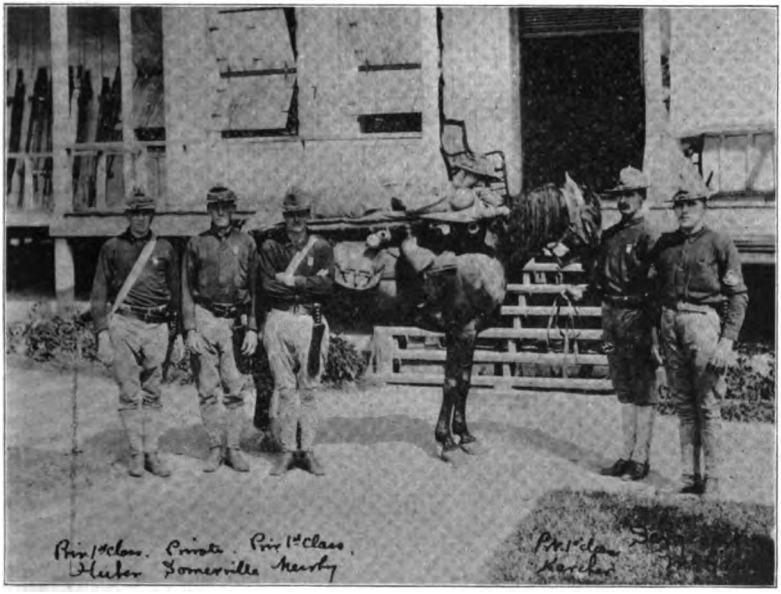

Fig. 2. Extemporized Mounted Litter with Patient placed Thereon.

front are secured by the guy rope of the tent to the poles, and at the rear by two spur straps. The other articles may be then used for a pillow. The patient is then lifted by three bearers and placed on the litter when all should appear as in the second illustration.

The winning squad consisting of Privates 1st class Huber, Karcher, and Newby and private Summerville, Hospital Corps, in charge of Sergeant McGann, Hospital Corps, competed in the following problem: Having secured the horse of a wounded

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trooper they espy him lying helplessly wounded 100 yards away; they run to him, apply such first aid as may be required, make a litter from poles and the wounded trooper's equipment attached to saddle, place him upon it and returned 100 yards to the starting point. This team did this, applying first aid treatment for a "hypothetical" gunshot wound of the abdomen in the space of six minutes and fifty-four and one-fifth seconds. When the 200 yards run is eliminated this shows how quickly this litter can be made. Nos. 1 and 2 make the litter and Nos. 3 and 4 treat the patient.

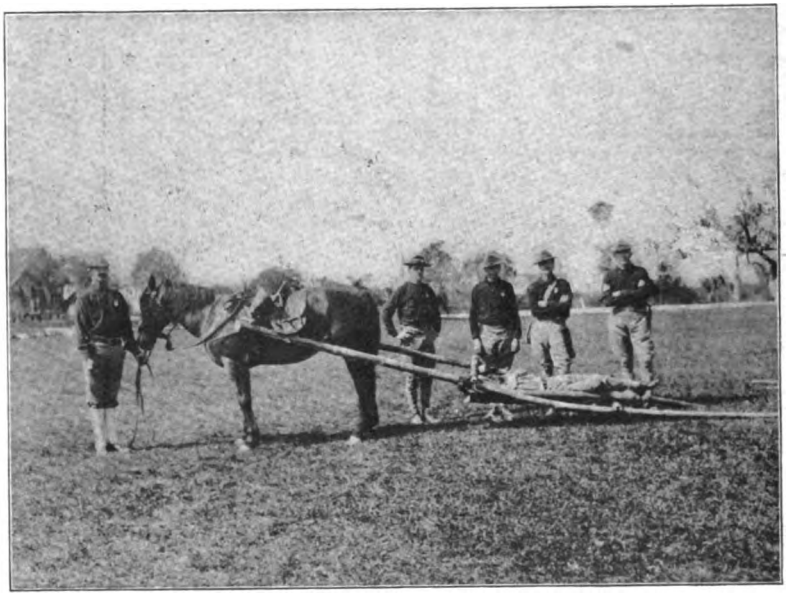

Fig. 3. Extemporized Mounted Litter utilized as a Travois.

The third illustration shows the travois made of two poles and two cross pieces fastened by shelter tent straps and attached to the saddle of a horse. The litter is made by rolling a blanket on two poles without other fastening; the head handles are suspended by leather waist belts and the foot handles on the lower cross piece. The same team lost this event for time because of a baulky horse.

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A HISTORY OF THE TYPHOID CASES OCCURRING ON BOARD THE U.S.S. CONNECTICUT.

By PAUL E. McDONNOLD, M.D.,

PASSED ASSISTANT SURGEON IN THE UNITED STATES NAVY.

BETWEEN January 27 and April 29, 1907, there occurred on board the U.S.S. *Connecticut* two epidemics of typhoid fever, the first being mild in character and entirely confined to the enlisted personnel and the second severe and limited to the ship's officers and their attendants. Whether these epidemics were distinct also as to origin can not definitely be stated, there being evidence both for and against such an hypothesis.

I reported for duty on board the *Connecticut* on April 12, 1907, just at the close of the first epidemic. I have, therefore, no personal knowledge of its history and have been compelled to rely entirely upon such records and reports as are available for my information in regard to it.

In order that a clearer understanding may be had of the subject I shall mention briefly a few facts which have more or less bearing upon the health of the ship's crew since the date of her being put in commission. As is probably known, the *Connecticut* is one of our largest and newest battleships. The ship was built at the Navy Yard, New York, and was put into commission at that yard on September 28, 1906. Until November 6, of that year, her crew was comparatively small but on that date 460 men were added to her complement, bringing it up to a total of 807 officers and men. From the latter date until December 15, 1906, when the ship left the navy yard, her senior medical officer reported the sanitary conditions on board as being bad, it being impossible to maintain anything approaching normal in the cleanliness of the ship or crew. He stated that Wallabout, or harbor water, which is at all times very foul, was used in flush-

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ing down the upper decks, in scrubbing canvas, and was the only supply to the crew's showers. Brooklyn city water was used for drinking and cooking purposes, it being first run into the ship's gravity tank and from there distributed to the various parts of the vessel.

On December 15, 1906, the ship left the New York yard for Hampton Roads, Va., where she arrived on December 18. When she left the yard, there was of necessity an entire change of water supply, the water used for drinking and cooking purposes being distilled and that used for the crew's showers, decks and canvas being clean salt water. The ship's water tanks hold little more than enough for a day's supply, so that the Brooklyn city water, in the ordinary course of events, would have become exhausted by the time the ship reached Hampton Roads. The senior medical officer stated, however, in his report, that owing to some unusual circumstance, several tanks of this water were on hand two weeks after this time.

From December 18, 1906, to January 2, 1907, the ship was at Hampton Roads, with the exception of four days during which she lay off the Capes. On January 2, she sailed for Newport, R. I., where she remained one day, leaving there on January 4, to return to Hampton Roads where a stay was made until the 8th. On the latter date, the ship sailed for Culebra, V. I., where she arrived on January 14. During the stay at Hampton Roads, fresh milk and oysters were received on board for the use of officers and men, and fresh meat and provisions taken on board for the use of the crew. Supplies for the officers had been obtained at New York.

From January 14 to 28, the ship was at or near Culebra where liberty was given. Culebra is a very small island and no typhoid fever, so far as known to the health officer there, a surgeon in the navy, existed either among the Marine guard stationed there or among the native inhabitants.

On January 26, 1907, an epidemic of diarrhea appeared among the crew, nineteen cases being admitted to the sick list on that date, twenty-three cases on the day following, and four on January 28. Numerous other cases are said to have occur-

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red during this period which were not admitted to the sick list, the patients being able to attend to their duties. According to the ship's medical journal, these cases presented practically the same symptoms, viz: "colicky pain, diarrheic evacuations, pale, flabby tongue; pains in back, about kidneys; headache and rise of temperature." No distinct dietetic cause was assigned for the outbreak by the senior medical officer, but he reported that he found it to be a custom among the ship's cooks at this time to take large sections of meat out of cold storage and to let them lie on deck to thaw out, sometimes for twenty-four hours, before cooking them. This in a tropical climate permitted the outer portions of the meat to become more or less decomposed at times, and he thought it possible that poisoning from the meat might have been the cause of the epidemic.

With the exception of four, all of the diarrhea cases were discharged to duty before February 1. Three of the remaining cases were discharged to duty on the latter date and one was carried on the list continuously until discharged to hospital with febris enterica on February 28. Including the latter case, six of the diarrhea cases then admitted to the sick list were afterwards admitted with febris enterica, the dates of admission, omitting the above case, being February 11, 16, 17, 18, and 22.

Between January 27, and February 25, there was a total of thirty-four cases admitted with febris enterica, including two suspected cases. These cases were admitted in the following order, although a diagnosis of typhoid was not always made immediately upon admission. All of the cases were, however, carried continuously on the sick list from the date of admission until discharged to hospital. excepting the two suspected cases mentioned which were not diagnosed as typhoid and which were discharged to duty:

1 case	January 27.	2 cases	February 17.
2 "	February 5.	4 "	" 18.
1 "	" 6.	2 "	" 19.
2 "	" 11.	3 "	" 20.
3 "	" 12.	1 "	" 21.
1 "	" 13.	1 "	" 22.
4 "	" 15.	1 "	" 24.
5 "	" 16.	1 "	" 25.

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The two suspected cases were admitted, one on the 12th and the other on the 15th. One of the cases admitted on February 5, was a ship's cook who had just five days previously been discharged from the sick list where he had been under treatment for a lymphadenitis, due to a wound of the foot, from January 20 to 30, 1907. When admitted on February 5, he had a temperature of 103.8 and it is evident that he was in the incubation period of typhoid when first on the sick list. The beginning of the disease in his case occurred apparently between January 30 and February 5, while he was performing duty as ship's cook. The second case admitted on February 5, had been performing duty as a messman. He was admitted with a temperature of 105 and feeling "ill all over." It is very evident that the disease began here also several days prior to the date of admission. Not a single member of the mess for which he worked, however, contracted the disease.

From February 1 to 23, 1907, the ship lay in Guantanamo Bay, Cuba, with the exception of about one week during which a cruise was made to St. Thomas, D. W. I., where two days (February 13 and 14) were spent. So far as known, there was no typhoid in epidemic form either at St. Thomas or in the vicinity of Guantanamo Bay at the time the ship visited these places.

On February 23, the ship left Guantanamo Bay for New York, where, on February 28, all of the typhoid cases then on the sick list were transferred to hospital with all of their effects. After their departure, the sick bay, isolation ward and dispensary, were washed down with bichloride solution and their contents disinfected; the men's head (water-closet) disinfected with live steam; and such other sanitary measures carried out as were deemed necessary to rid the ship of further danger from such sources.

On March 6, 1907, the ship sailed from New York (Tompkinsville) for Cape Cruz, Cuba, to take part in the spring target practice. On the second day out, another case of continued fever appeared which, later, gave a positive Widal reaction. This was after an interval of nine days during which no new cases had developed and was the beginning of what might be called the

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intermediate series of cases, six in number. The five other cases appeared, one at a time, on March 9, 11, 15, 19, and 22. The first case was discharged to duty on April 10, (34 days); the second on March 15, (6 days); the third was transferred to hospital when the ship arrived at Hampton Roads on March 23; and the fourth (which was not diagnosed as typhoid, but was suspicious), was discharged to duty on March 28 (13 days), the patient leaving the ship immediately on furlough. Of the last two cases, the first had no temperature at any time, so far as the records show, above ninety-nine, and he was discharged to duty on March 28, or eight days after admission. The remaining case was admitted with a "sore throat", bones aching, and a temperature of 100. He was discharged to duty in three days, viz., on March 25. Both of these cases gave a positive Widal reaction, however.

This was the end of the first epidemic, which, as previously mentioned, was entirely confined to the enlisted personnel. There was a total of forty cases, including the three suspicious cases noted, and the symptoms presented in many cases were exceedingly mild. So far as the available records show, headache was the most constant symptom upon admission, being noted in thirty-six cases. Coated tongue and malaise are mentioned as occurring in thirty-four cases; muscular pains over body and limbs in twenty-nine; "sore throat" in five; abdominal pain and tenderness in five; constipation in three; and diarrhea in six. The combination of headache, coated tongue, malaise and muscular pains over body and limbs, occurred in twenty-six cases and in three others there were arthritic pains and backache. Delirium more or less pronounced, occurred in two cases and bed-sores in one, prior to transfer to hospital. Fourteen cases were admitted with a temperature of 103 or above, and seventeen below that point. In nine cases, the record of the temperature on admission is not obtainable. Four cases ran a temperature between three and four weeks before transfer to hospital; six between two and three weeks; twenty between one and two weeks; and ten less than one week.

During the first series of cases, circumstances rendered it

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impossible to obtain a Widal reaction as an aid to diagnosis, there being no typhoid culture on board the ship at that time, and the absence of characteristic symptoms in many instances, taken together with the seeming impossibility for an infection of this character to occur at the time, made a diagnosis exceedingly difficult at first. Owing to the unusual symptoms presented in many cases and to the fact that no deaths occurred as a direct result of the epidemic, some doubt must necessarily be entertained even at the present time as to whether all of the cases can properly be regarded as typhoid or paratyphoid. In the twenty-seven cases of definite paratyphoid infection which I have been able to find in the literature upon the subject, there were two deaths, showing that the death rate in this disease is about the same as in true typhoid.

Through the kindness of Surgeon E. G. Parker, and Surgeon Philip Leach, U.S.N., I have been able to obtain certain additional facts in regard to the thirty-two cases transferred to hospital at New York. Thirteen of these cases gave a positive Widal reaction; fourteen gave what was termed a "pseudo" reaction in which clumping of the bacilli occurred without complete loss of motion; and in five cases the reaction was negative. Rose-spots were observed in twenty-one cases; in ten these were absent; and in one the record is not obtainable. Rose-spots were present in eleven of the fourteen cases which presented the "pseudo" reaction and in two which gave a negative reaction, while they were unobserved in four of the cases in which the Widal reaction was positive. Three cases ran a temperature after transfer to hospital for more than four weeks; two between three and four weeks; eight between two and three weeks; nine between one and two weeks; nine less than one week; and in one case the record is not obtainable. Of the cases with the "pseudo" reaction, two ran a temperature at the hospital for more than three weeks; three between two and three weeks; five between one and two weeks; and four less than one week. A number of the "pseudo" cases had typical clinical signs of typhoid fever and must, I think, be regarded as such.

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Of the intermediate series mentioned, four cases presented positive Widal reactions, while in two the results of examination are not known.

Thus far no officer had contracted the disease. One had been admitted to the sick list for two days during the epidemic of diarrhea in January and, prior to this, viz., on January 7, another had been admitted for one day with headache, malaise, muscular soreness and slight fever, but no after effects were noticed in either case. There is now an entire shift of scene to the wardroom and warrant officers' messes. To properly appreciate this change it must be understood that the officers' quarters on the *Connecticut* are entirely separated from the crew's quarters and confined to the after part of the ship. No members of the crew, other than compartment cleaners, stewards, mess attendants, and orderlies, ever enter these quarters except for a few moments at a time on special occasions. The officers are divided into five messes which are absolutely distinct in regard to living space, cooks and attendants. These are first, that of the commander-in-chief of the fleet and his personal staff; second, that of the commanding officer of the ship; third, the wardroom, which includes all other commissioned officers above the rank of midshipmen; fourth, the steerage, or midshipmen's mess; and, fifth, the warrant officers' mess. The wardroom is on the berth deck, immediately beneath the quarters of the commander-in-chief and commanding officer, and just aft of the steerage quarters on the starboard side and the warrant officers' quarters on the port side. Two of the wardroom officers, however, both of whom contracted typhoid, had staterooms just forward of the commanding officer's quarters on the gun deck.

On April 11, 1907, one of the officers just mentioned was admitted to the sick list with "headache, pains in the limbs and back, muscular soreness, bowels constipated" and a temperature of 101. On April 14, a warrant officer, who had quarters on the deck below, was admitted with similar symptoms. Repeated examinations gave negative Widal reactions. A positive diazo-reaction, however, was obtained in both cases on April 19. In the first case some gurgling and tympanites was present on the

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latter date and the temperature had gradually risen to 10.42. The warrant officer had been absent from the ship on leave in Washington, D. C., from March 30 until April 8. Both cases were transferred to hospital on April 20.

On April 25, a third officer was admitted with a temperature of 104.4, severe headache and backache, tongue coated, bowels constipated and breath foul. He stated that he had been feeling badly for several days but did not wish to give up. An examination of his blood gave a negative Widal reaction. He was transferred to hospital on the following day.

On the same day on which this officer was admitted (April 25), a wardroom mess attendant was put on the sick list with malaise, headache, temperature 101.4, and a history of having felt feverish for several days. Here, also, all examinations proved negative. He was transferred to hospital on April 30.

On April 29, the last officer to be admitted was put on the sick list with a heavily coated tongue, malaise and a temperature of 103.6. This officer had been on leave from about the first of the month until the 15th. He gave a history of having attended a dinner just before his return to the ship where he was taken suddenly ill with nausea and vomiting. Since then he had been feeling badly and had been constipated. For several days prior to his admission he had been feeling feverish in the evening but he thought it would pass off. When he was examined, rose spots were found and a positive Widal reaction was obtained in five minutes (1:50, sterile), showing rather conclusively that the attack had begun at least a week before. He was transferred to hospital on April 30.

This was a total of five cases, four from the wardroom and one from the warrant officer's mess. One other case properly belongs in this group, however. On April 2, 1907, a medical officer, who had been attached to the *Connecticut*, was transferred to another vessel. About April 20 this officer was taken ill with what proved to be a mild case of typhoid, diagnosed practically by Widal reaction alone. He was confined to his bed for a few days only. The mess attendant spoken of had attended this officer while he was attached to the ship.

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This, briefly, is the history of the cases occurring in the two epidemics. Let us now look at the possible sources of infection. As water has heretofore been regarded as the principal medium through which the bacillus of Eberth and other members of the typhoid group gain entrance to the system, it seems proper to look first at the water supply of the *Connecticut* before and during the epidemics. As previously stated, Brooklyn city water was used for drinking and cooking purposes prior to December 15, 1906, and for a short time thereafter. The fact that no epidemic of typhoid fever existed in Brooklyn or at the navy yard, and that no case of the disease occurred on board ship during the time spent at the yard (nearly three months), seems almost sufficient evidence in itself to prove that this water was not at fault. The further fact that the first epidemic did not begin, so far as the records show, for nearly a month after the use of Brooklyn water had been discontinued, is additional proof of its innocence. There is a theoretical possibility for this water to have been contaminated while being run into the ship's gravity tank, but there is no evidence that this ever actually occurred. This possibility lay in the use of a hose that had been used in flushing down decks with harbor water. The hose ordinarily used for fresh water, however, was distinctly marked and there is no good reason for believing that it was ever exchanged, accidentally or otherwise, for a salt water hose. Another possible source of contamination existed in the double faucets in use for a time in the officers' bathrooms and pantries. These faucets were so constructed that by turning a handle in one direction fresh water would flow and turning it in the opposite direction allowed salt water to run. These faucets were only in use for a short time and the water so contaminated was that used by the officers who were not affected during the first epidemic.

In regard to the distilled water used on board, there are, theoretically, two ways by which this water might have been contaminated. The ship's tanks are so constructed that it is necessary for a man to go inside of them when they are cleaned out, which is done every few weeks. The man whose duty it was to attend to this work, I found from observation, was in the

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habit of wearing an old dirty suit of dungarees, without boots or shoes, when he performed this duty, and, on one occasion, I found him about to go into the tanks while he was suffering from an attack of diarrhea. He was on the sick list with diarrhea from January 27, to February 1, 1907, during the epidemic of this disease, but he cannot remember whether or not he went into the tanks just before or after this attack. Another possible source of contamination existed in the evaporator room where the freshly distilled water is tested for salt. I found it was the habit of the man on watch here to dip a tumbler, hand and all, into the tank whenever he tested the water, which was many times a day. Six different men were on watch during the twenty-four hours, so that, had any of them had a mild attack of typhoid, the disease might have been spread in this way. One water tender was admitted with just this type of the disease during the latter part of the epidemic (March 22 to 25).

If the ship's water tanks were infected, however, all trace of it had disappeared by the middle of April when a bacteriological examination of the water from every tank in the ship was made. The fact that none of the ship's officers or their attendants who used water from the same tanks, were affected at this time, and that the epidemic was not more universal and extended among the crew, argues against this origin.

As stated elsewhere, harbor water was used in scrubbing down upper decks and washing canvas while the ship lay at the New York Navy Yard. This has been thought to be a possible source of infection, but drying and exposure to the sun would, alone, I think, have prevented any infection of the ship itself in this way from continuing for any length of time, and there is no material that can be discovered which might have been washed in this water, stowed away, and, later, broken out, thus acting as an infective agent. The danger from the use of this water was an immediate one only it is believed, and lay in the possibility of its infecting the men who came in contact with it at the time it was used.

The origin of the epidemic from an ambulatory case among the crew must be considered. While fitting out for sea at the

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New York yard, many of the navy yard workmen were daily employed throughout every part of the ship. It was, of course, possible for one of these workmen to have infected some member of the crew, or one of the crew might have contracted a mild case in the city of Brooklyn, the distribution taking place on board by contact or otherwise. While at Hampton Roads on January 6, 7, and 8, 1907, oysters, milk, and fresh vegetables were obtained from shore and freely partaken of by the officers and men. Some of the crew might have been infected here, although it must be stated that an investigation made by myself at a later date (April) failed to disclose the presence of typhoid fever in epidemic form at Old Point, Norfolk, Phoebus, or vicinity. Several cases were found at Norfolk and Hampton, however, and the fact that the disease is commonly called "the fever" around Hampton, shows the extent of its prevalence there. The ship's cook who was admitted to the sick list on February 5, may have contracted the disease in this way and acted as a distributing agent on board ship. As previously noted, it seems probable that he performed his duties in the galley for several days after his attack began. Here he could easily have infected the whole ship's company, with the exception of the officers whose food was prepared in a separate galley. This would have been especially easy at this time as the epidemic of diarrhea had just been prevailing and the digestive apparatus of about half the crew inflamed and prepared to receive infection. Such a theory would leave unaccounted for as to origin three cases, viz., those admitted on January 27, February 5 and February 6, but it is not difficult to suppose that these cases might have contracted the disease from the same source as the cook. It is rather remarkable that the messman admitted on the same day as the cook (February 5), did not infect some member of his mess, but such is the fact, all of the members of this mess being bandsmen and none of them contracting the disease. This goes to show that even probabilities are sometimes very unreliable data upon which to base opinions in the consideration of the source of epidemics.

Finally, the infection may have occurred through some arti-

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cle of diet kept in cold storage or elsewhere, and this theory is a very plausible one. The cold storage rooms on the *Connecticut* are very large and fresh meat, fruit, milk, butter and other perishable articles, are kept there for long periods of time. As has been mentioned, the meat and provisions used by the crew had been obtained at Hampton Roads, while that used by the officers had been taken on board in New York. This might account for the fact that none of the officers were involved at this time. What the infected article of diet might have been it is impossible at this time to state. As the meat was cooked before being served, the only possible danger from this source would seem to have been to those only who handled it raw. No vegetables are known to have been served raw, or any fresh milk issued to the crew after the first two or three days out from Hampton Roads. Fresh butter could have been the article at fault.

It is not improbable that the same article of diet which caused the epidemic of diarrhea, was also the source of infection with typhoid. Although only six of the diarrhea cases admitted to the sick list contracted typhoid, many of the typhoid cases were affected with diarrhea during the epidemic of the latter disease. As previously stated, a large portion of the ship's company was involved during the diarrhea epidemic but only forty-six were put on the sick list. As many of the typhoid cases have not yet been returned to the ship, it is impossible to determine definitely how many of them were affected. Out of twenty who have returned, however, thirteen state positively that they had diarrhea at that time and one cannot remember. Adding the six cases above mentioned, we have a total of nineteen out of a possible twenty-six who had diarrhea during the epidemic of that disease, there being fourteen cases which have not been questioned about the matter.

Typhoid fever, so far as we know at the present time, has an incubation period varying from eight to twenty-one days. While a number of writers on the subject are inclined to believe that the period is longer at times, and while it is evident that our ideas on this point are likely soon to be changed, owing to the fact that the disease is being recognized more and more as pro-

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tean in origin, so far as the infecting microorganism is concerned, sufficient proof seems lacking as yet to establish a period at variance with this. It must certainly be said, I think, that the majority of cases, at least, come within this period. This being so, it seems probable that at least thirty-one of the forty cases appearing during the first epidemic were infected at the same time, viz., during the latter part of January, 1907. By extending the incubation period to twenty-five days, it is possible for the whole forty cases, excepting the intermediate series of six, to have contracted the disease at the same time.

The possibility of the dispensary being a factor in the distribution of the disease must be mentioned, though there is no evidence that such is the case. The cook mentioned was on the sick list during the height of the epidemic of diarrhea when a large portion of the ship's company was getting treatment at the dispensary, but so far as the records show, he received only local treatment and had no opportunity to infect the medicine glasses, which offered the only apparent means for transmission of the disease, as he was confined to the sick bay which is separate from the dispensary. From November 14, 1906, to February 1, 1907, seventeen of the forty cases of typhoid had been on the sick list for other causes, but, with the exception of nine, none of them had been on the list within a month of the time of their admission with typhoid. Six of these nine were diarrhea cases which have been mentioned as later developing typhoid.

Of the forty members of the crew affected in the first epidemic, there were thirty belonging to the deck force; six belonging to the fire-room force; one carpenter's mate; one private marine; one ship's cook and one water tender. Why such a large percentage of the deck force, which represents less than one-half of the ship's crew, was affected, is somewhat hard to explain. If the theory could be accepted that the harbor water used in scrubbing decks and canvas while in New York was the source of infection, this might account for it, as the deck force is principally concerned in the performance of this duty. The members of this force however are all much younger than the members of any other division of the ship's crew and many of them

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are boys. This fact might explain, and, it is believed, does explain, the large percentage of cases which occurred in this force. The thirty cases mentioned were scattered throughout the entire seven divisions into which the seaman's branch is divided. They were employed all over the ship, particularly on deck, and ate at seven separate messes.

The intermediate series of cases is hard to account for except by the theory of contact, either direct or indirect. It should be mentioned that conditions on board a battleship are entirely dissimilar from those in camps and opportunities for infection by indirect contact are small in comparison. The *Connecticut*, when I reported on board for duty on April 12, 1907, was as clean as soap and water, sand holystone and fresh paint could make her, and I was reliably informed that she had been so since she left the New York Navy Yard. There is hardly any part of the ship that is not thoroughly cleaned by the means mentioned at least once a week in the ordinary course of events, and the more frequently used parts are gone over daily. The crew's head, or water-closet, may have been the point of distribution. Certainly after its disinfection with live steam about March 1, only six other cases appeared among the crew and these could have been previously infected.

In regard to the second epidemic, every effort was made to trace it to the original infection. The cases which had been discharged to duty on board ship were all examined and questioned as to their duties and as to whether or not they had at any time entered the officers' quarters; the officers' cooks and attendants, only one of whom had been admitted to the sick list, were all examined as to their health past and present; and the victims of the epidemic were questioned as to the likelihood of their having come in contact with any of the typhoid patients or convalescents. All of the evidence so obtained was negative.

The last case of typhoid among the crew was only discharged to duty on the day before the first officer was affected and a possible source of infection by indirect contact was through the two medical officers, both of whom were members of the wardroom mess, but the evidence here is incomplete. As previously mentioned,

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one of these officers was taken ill about April 20, with what proved to be a mild case of typhoid (diagnosed by Widal reactian). He apparently contracted the disease about the same time as the other officers. He was certainly well when he left the ship and for some time thereafter. The mess attendant who was admitted on April 25, had attended this officer, when he was attached to the ship, but this case was proven to be one of paratyphoid fever. A number of the cases in the first epidemic were probably paratyphoid and the mess attendant may possibly have been infected by indirect contact through the medical officer. The warrant machinist who was the second to be taken ill, did not, so far as can be discovered, come in contact at any time prior to his illness with either of the medical officers, the mess attendant or any of the officers who contracted the disease. So far as can be learned, the medical officer mentioned was not intimate with, or likely to have come in contact with the officer admitted on April 11, who had quarters on the deck above the wardroom. The officer admitted on April 25 was fond at times of bridge whist, as were both the doctors, and his infection might have occurred in this way. Neither this officer nor any of the others affected, however, took part regularly, in the evening game of bridge which was usually played by the two doctors and two other officers, neither of whom contracted the disease.

The incubation period of all of the cases in the second epidemic lies apparently between March 23, when the ship arrived at Hampton Roads, and April 2, when the medical officer who contracted the disease was detached from the ship. The incubation period of the first two cases is evident from their dates of admission, there being no reason to believe that the disease in either case began prior to this time. The third and fourth cases which were admitted on April 25, gave histories indicating that their attacks began several days before. So with the fifth case which was admitted on April 29 and which gave a positive Widal reaction and exhibited rose-spots. This case gave a history which would indicate infection while away from the ship but, under the circumstances, such a supposition can hardly be entertained. The possibility of this case having been infected after his return from leave (on April 15), must be admitted, but the incubation period in such case would be extremely short.

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FIRST EPIDEMIC.

Case.	Rank or rate.	Division.	Date of admis'n.	Temp. on admis'n.	Widal.	Rose-spots.	Duration of fever.	Disposition of case.	Symptoms on admission.
1	O. S.	5	Jan. 27	?	Pos. 40″ day	No	18 days	To hosp. N. Y.	Diarrhea, malaise, "sore throat."
2	S. C.	12	Feb. 5	103.8	" 36″ "	Yes	36 "	"	Pains in joints, malaise.
3	O. S.	3	" 5	105	" 28″ "	"	37 "	"	Headache, epigastric pain, very ill.
4	O. S.	7	" 6	103	" 30″ "	Faint	24 "	"	Headache, weak and ill.
5	O. S.	1	" 11	99	Pseudo 28″ d.	No	27 "	"	Headache, coated tongue.
6	O. S.	2	" 11	104	Neg. 23″ day	"	31 "	"	Headache, coated tongue.
7	O. S.	1	" 12	103.4	Pos. 28″ "	Yes	29 "	"	Headache, muscular pains, malaise.
8*	C. P.	10	" 12	?	None made	?	6 "	To duty	Diarrhea Headache.
9	O. S.	6	" 12	103	Pos. 23″ day	Yes	54 "	To hosp. N. Y.	Headache, muscular pains, malaise.
10	O. S.	?	" 13	?	Pseudo 24″ d.	No	25 "	"	Headache, constipation.
11*	O. S.	?	" 15	101	None made	?	5 "	To duty	Headache, coated tongue, malaise.
12	F. 1 cl.	10	" 15	?	Pseudo 18″ d.	Yes	15 "	To hosp. N. Y.	Headache, muscular pains, malaise, ct. tongue.
13	O. S.	7	" 15	101.6	Pos. (?) day	?	23 "	"	"
14	O. S.	?	" 15	102.6	Pos. 21″ "	No	26 "	"	"
15	O. S.	6	" 16	101	" 24″ "	Yes	28 "	"	"
16	F. 2 cl.	10	" 16	102	Pseudo 24″ d.	"	34 "	"	"
17	O. S.	4	" 16	101.6	" 21″ d.	"	29 "	"	"
18	O. S.	7	" 16	102	" 25″ d.	"	29 "	"	" and constipation.
19	C. M.	9	" 16	?	" 24″ d.	"	13 "	"	" "
20	O. S.	6	" 17	104	" 18″ d.	"	19 "	"	" and "loose bowels."
21	O. S.	7	" 17	?	Neg. 19″ day	"	17 "	"	" "
22	O. S.	?	" 18	101	Pseudo 19″ d.	"	16 "	"	"
23	O. S.	5	" 18	103	" 18″ d.	No	23 "	"	"
24	O. S.	7	" 18	102.4	" 16″ d.	Yes	43 "	"	"
25	C. P.	10	" 18	?	Neg. 16″ day	No	10 "	"	"
26	P. M.	8	" 19	102	Pos. 17″ "	"	48 "	"	"
27	O. S.	?	" 19	102.2	" 20″ "	Yes	27 "	"	"
28	Cox.	6	" 20	104.6	" 28″ "	"	8 "	"	"
29	O. S.	7	" 20	103.6	Pseudo 18″ d.	"	17 "	"	"
30	O. S.	1	" 20	104	" 22″ d.	"	20 "	"	"
31	F. 2 cl.	10	" 21	?	" 17″ d.	"	7 "	"	"
32	O. S.	1	" 22	?	Neg. 14″ day	No	6 "	"	"
33	O. S.	1	" 24	103	" 12″ "	Yes	26 "	"	"
34	O. S.	2	" 25	102	Pos. 19″ "	No	21 "	"	"
INTERMEDIATE SERIES.									
35	C. P.	10	Mar. 7	100.8	Pos. 25″ day	?	24 days	To duty	Abdominal pain, ctd. tongue, ill for week.
36	O. S.	6	" 9	103.4	" 25″ "	?	3 "	"	Abdominal pain & tend., ctd. tongue, headache.
37	O. S.	6	" 11	100.4	No record	Yes	Unknown	To hosp. Norf.	Headache, sorethroat, malaise, ctd. tongue.
38*	O. S.	11	" 15	103	No record	?	5 days	To duty	Malaise, coated tongue.
39	O. S.	2	" 19	?	Pos. 15″ day	?	3 "	"	Headache, diarrhea, colic, ctd. tongue.
40	W. T.	10	" 22	100	" 12″ "	?	3 "	"	"Sore throat," bones aching.
SECOND EPIDEMIC.									
1	Lt.	..	Apr. 11	101	Neg. 8″ day	No	Unknown	To hosp. Norf.	Headache, muscular pains, malaise.
2†	W. Mch.	..	" 14	?	Neg. 5″ "	"	"	"	"
3	Lt.	..	" 25	104.4	Neg. (?) "	"	"	..	"
4‡	M. Att.	..	" 25	101.4	Neg. (?) "	"	"	"	Headache, malaise.
5	Lt.	..	" 29	103.6	Pos. (?) "	Yes	"	"	"

Data relating to Widal reaction, rose-spots and duration of fever in first series of cases, obtained from Naval Hospital, New York.
Case No. 1 was originally admitted with "diarrhea;" this was changed on Jan. 30 to "tonsilitis," and a diagnosis of typhoid was not made for some time thereafter.

*These cases were not diagnosed as typhoid, but are suspicious.
†This was the only fatal case in either epidemic.
‡This case proved to be paratyphoid fever.

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During the period from March 23 to April 2, raw oysters, milk and salads, bought at Old Point, were served at the wardroom and warrant officers' messes. Some of the oysters were said to have been so dark, soft and unpalatable looking that many of the officers refused to partake of them. The coincidence of the appearance of two epidemics on board after visiting Hampton Roads, both within the incubation period of typhoid from the time of the stay at this port, seems worthy of note. While the disease could not be found in epidemic form in this vicinity during April, it is a matter of common knowledge that typhoid is usually plentiful in this section and I am personally of the opinion that both epidemics originated here.

With the transfer to hospital of the two cases on April 30, the disease disappeared from the ship in epidemic form. There was one death in the last epidemic and all of the cases, with the exception of the medical officer and mess attendant, were unusually severe.

One sporadic case occurred after April 30 in the person of a chief yeoman who joined the ship from the U.S.S. *Hancock* during the early part of May. This man was taken suddenly ill at his home in Jersey City, N. J., on May 25 with symptoms of general peritonitis. He was transferred to hospital immediately and an operation performed, as a result of which it was discovered that his attack was due to the perforation of a typhoid ulcer. He did not survive the operation.

This case had been going about doing his duty on board ship up to the day before his death when he went to his home on leave. It was learned afterwards that he had spoken to several people of not feeling well but he had not complained to any of the medical officers or asked for medicine. The man was employed in the office of the commander-in-chief and ate at the chief petty officers' mess. He was not associated in any way with any of the wardroom or warrant officers, their attendants, or members of the crew, outside of the employees in the office where he was on duty and the members of the chief petty officers' mess, none of whom had been affected with typhoid. The employees in the office of the commander-in-chief had in

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fact only joined the ship on April 16, 1907. The man did not use the men's head and so had no opportunity to have become infected in that way. He is believed to have been infected while on the U. S. S. *Hancock* where all of the typhoid cases in the first epidemic which were transferred to hospital in New York, were discharged as soon as they were able to leave the hospital. Or he may have contracted the disease at his home in Jersey City. As about half of the cases of perforation in typhoid fever occur during the third and fourth week of the disease, the chances are that this man had been ill since he first joined the ship.

In conclusion, I wish to express my regret that I have been unable to present evidence more definite in character in the consideration of the origin of these epidemics. I have tried, however, to bring out all of the facts in the case so far as they are obtainable and from these facts I leave you to draw your own conclusions.

PROPHYLAXIS.

BERI-BERI (*Roths Jahresbericht*) a disease which develops especially in people who live mostly on rice and non-nitrogenous food, was remarkably well subdued in the Russian-Japanese war with dietetic measures,—a remarkable advance in hygiene as compared with the Japanese-Chinese war. Cholera nearly disappeared entirely; typhoid was 9. 26 per cent against 37.14 per cent in the Chinese war; dysentery 10.50 per cent as against 108.96 per cent; malaria was 1.96 per cent as against 102.58 per cent; Deaths were 2.68 per cent instead of 15.72 per cent. The Japanese used as a prophylactic, creasote pills, and every man received one pill daily. Water, and apparatus to boil it, were carried with the army. Apparatus for disinfection were also carried and whenever indicated, the clothing was disinfected. Prophylaxis in the army against smallpox, yellow fever, plague, typhoid fever and dysentery has greatly reduced the morbidity. Military surgeons should especially be trained in bacteriological work; how much such surgeons are capable of doing, by examination of the quarters, grounds, water conditions and removal of garbage and excreta, to prevent epidemics, has been amply shown in the Russian-Japanese war.—FRED J. CONZELMANN.

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A METHOD OF TRANSPORTING DISABLED SOLDIERS IN THE FIELD, ON A REGULATION LITTER, ATTACHED TO A SADDLE, USING ONLY A MOUNTED SOLDIER'S EQUIPMENT.

By CAPTAIN GEORGE P. PEED,
MEDICAL CORPS UNITED STATES ARMY.

DURING the Division Meet at Pasay, February 1907, the following event was open to squads of the Hospital Corps.

For squads of four: first No. 2 in charge.
1st squad No. 1, mounted.
" No. 2, with litter at the "shoulder."
2nd squad at the "carry."
Run 200 paces to a designated "patient," render first aid for an injury noted on the diagnosis tag attached to the man, improvise a means, fasten to the saddle, for carrying the patient lying flat on his back, load the patient thereon and bring him at a walk to a designated point and unload him.

The squad from the Division Hospital demonstrated the method to be described in this paper and was awarded first place.

PREPARATION OF THE SADDLE.

Stirrups and stirrup straps are removed from the saddle. The surcingle is then passed under the saddle-bags and over the saddle, between the cantle and the stud, and cinched tight around the horse. The lariat is uncoiled and the picket pin detached. The blanket roll is strapped to the cantle as tightly as possible.

FASTENING THE LITTER TO THE SADDLE.

The litter is opened, both braces being extended and placed on the saddle, with the middle of the front brace in front of the pommel, and resting on the ledge over which the quarter-strap passes. The two poles of the litter rest on the blanket-roll.

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The center of the picket pin is placed under the center of the front brace, and both are secured to the pommel by the middle coat strap. The picket pin is used to add security to the brace and lift the canvas from the pommel. Each side pommel coat strap is used to secure the litter to the pommel by passing it through the front litter stirrup of its respective side, and buckled tight. The litter should be perfectly level, over the center of the saddle and parallel to the back of the horse. One of the stirrup straps is then passed under the blanket roll, over the litter and buckled tight.

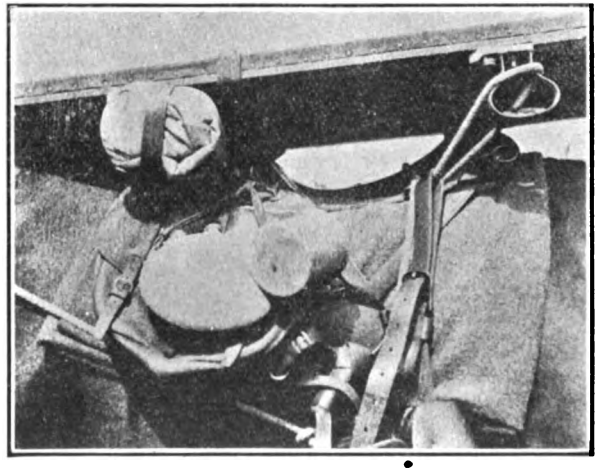

Fig. 1. Showing bight in lariat binding the front litter stirrup on the off side to the saddle.

The lariat is grasped near one end, and a bight passed through one of the stirrup loops of the saddle; the bight is drawn through until the knot in the end of the lariat is snug against the stirrup loop; the bight is then passed around the front litter stirrup on the same side, drawn tight, and made fast by a half hitch at the stirrup loop. The free end of the lariat is then passed across the seat of the saddle, and a bight passed through the opposite stirrup loop, around the front litter stirrup on the opposite side, and made fast.

A bight in the lariat is then passed through the cincha ring on the same side, and the free end of the lariat passed through the bight and tightened. The bights described above should be

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made as near the attached end of the lariat as possible. The rope is then carried back and a hitch thrown around the rear litter stirrup on the same side and drawn tight, while the rear handles are pulled down. The rope is then passed over the litter, hitched around the opposite litter stirrup and carried to the cincha ring on the corresponding side, and made fast. The litter is then ready for the patient.

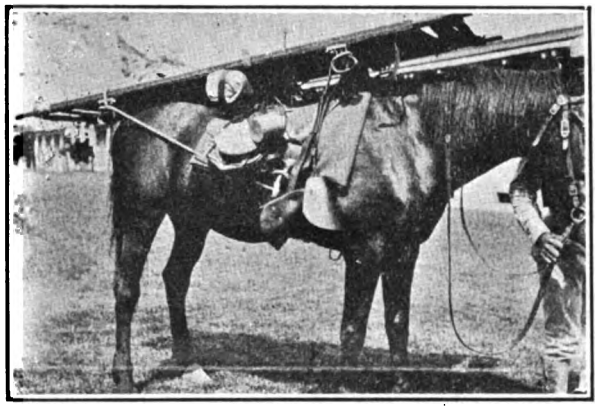

Fig. 2. Showing the litter ready to be loaded.

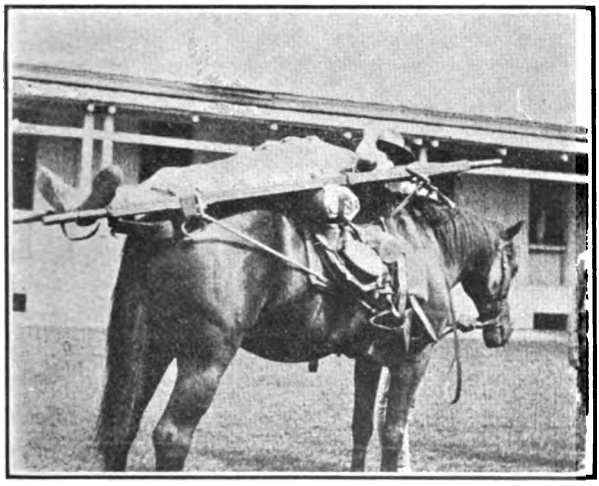

Fig. 3. Loaded Litter.

The patient is loaded with his head in the direction of the head of the horse, and a coat or some other suitable article should be used as a pillow, extending over that part of the litter above the pommel. The litter sling in front is passed through the litter

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stirrup of the same side, across the patient's chest, under his arms and fastened to the opposite stirrup. The other sling should be fastened in the same way over his legs.

The transportation of disabled soldiers in the field, has always been, and ever will be, a problem to be worked out with the facilities at hand.

The greatest objection to this form of transportation is that the motion of the horse's back is transmitted to the patient, causing more or less jolting, depending on the gait of the horse, yet it is believed that the method will be of advantage at times, as are the travois, cacolet, dooly, etc.

It has been repeatedly demonstrated that it is possible to trot, gallop and run without much inconvenience to the man on the litter.

The advantages are, viz:

The center of gravity of the loaded litter is as near the saddle as practicable.

The litter is quite securely attached, and the saddle prevented from shifting by the addition of the surcingle.

The litter can be prepared in a few minutes, and nothing but the equipment of a mounted soldier is required.

SUDDEN DEATH FROM ORCHITIS.

AN epidemic of parotitis attacked twenty-eight men (Bonnette, *Deutsche Militararztliche Zeitschrift*). Nine of them developed simultaneously a severe orchitis. Especially severe were the subjective symptoms in an infantry soldier, nineteen years of age, formerly always well and strong. On the fourth day of the disease the temperature was 39.5, pulse 130, heart sounds rough and weak. On the evening of the following day sudden death resulted without any preliminary symptoms. Autopsy not allowed. The author considers that death was due to embolism following infectious endocarditis.—FRED J. CONZELMANN.

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Contemporary Comment.

MILITARY MEDICAL NEEDS IN AUSTRIA.

IN the *Deutsche Militaerztl. Zeitschrift*, Dr. Hueppe makes an interesting communication concerning the necessity of a reform in the medical corps of the Austrian Army. The lack of candidates for army surgeons and the increased number of resignations owing to insufficient advancement have reached the point of calamity. The problem does not only concern the army that seeks medical aid, but also the whole state to which the army with its excellent military sanitation has become a necessity for public sanitation. The sanitary service in Austria is only in its incipiency, whereas in Germany and other nations the medical men of the army in combating epidemics in peace and war, have added valuable contributions for the benefit of the nation. Organization and reorganization must develop from the circumstances within, in order to become efficient. Austrian authorities must rid themselves of the idea that medical officers are not combatants. For the medical officer, in his effort to prevent epidemics and striving against the smallest yet most dangerous enemies, is continuously a combatant, often risking his own life in order to save others from disease and death. The line officer is a combatant in actual warfare but in times of peace he is not. The military surgeon as hygienist and sanitary officer is a combatant in war and peace. Statistics of campaigns show, in very simple language, that in times of war the medical officer is in more danger than the line officer. The medical corps, as sanitary officers of the army or navy, is a technical body of men and must, as such, have the same rank and authority as other officers. Then, intelligent, ambitious young medical men will be attracted to the military service just as other intelligent men are attracted to the duties of the line. Our times and

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associations do not allow young men of academic education to be set back of other men. The danger of an inadequate medical corps in a campaign is very great. Many campaigns have been lost purely from lack of adequate military hygiene. Bismark and the German authorities fully appreciated the danger of epidemics to an army in times of war. France lost a whole army corps for lack of protective vaccination, a means which the German military surgeons had thoroughly carried out. The military medical school should have a two years course so that military surgeons may be thoroughly prepared for their duties. Sanitation in war, to be successful, must be supervised by men who had experience in times of peace.—F. J. CONZELMANN.

MILITARY MEDICAL SERVICE IN FRANCE.

IN France (*Roths Jahresbericht*) military surgeons fall into two classes, one class is too much, the other too little developed in military affairs. The latter usually possesses a better knowledge of science and medicine but have not the required authority with the soldiers. Good horsemanship is considered a better qualification for military surgeons by the leading authorities in France than a knowledge of medicine and surgery. A reform in the sanitary corps is undoubtedly necessary. According to the military law of 1905 men found unfit for military service on account of some trivial defect are enlisted in the future in the service corps (Service auxiliare) to serve without weapons. Formerly these men were only required to serve in time of war as storekeepers, horse tenders, etc. It is calculated to enlist 8,000 men annually in the service corps. The men consist of mechanics, shoe makers, tailors, harness makers, book keepers, clerks, laborers, etc., and constitute the working soldier. The plan originated with the Japanese who were very successful with the service corps in their recent war. —FRED J. CONZELMANN.

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Editorial Expression.

THE ARMY MEDICAL CORPS.

THE Act of April 23, 1908, reorganizing the Medical Deical Department of the Army, gives an increase in the medical corps of six colonels, twelve lieutenant colonels, forty-five majors and sixty captains or first lieutenants. Under this recent Act, the lieutenants of the Medical Corps are promoted to captain after three years service instead of five, and the increase in the higher grades insures promotion at a reasonable rate all through an officer's military career. Furthermore, applicants who are found qualified in the preliminary examination are appointed first lieutenants of the Medical Reserve Corps, and ordered to the Army Medical School in Washington, D. C., for eight months instruction.

Preliminary examination for appointment in the Medical Corps will be held on August 3, 1908, and formal applications should be in possession of the War Department prior to *July 1st.*

This modification of the Army Medical Service is so material that practically the entire circular of information for those who desire to enter the service is reprinted herewith.

The Medical Corps now consists of a Surgeon General with the rank of brigadier general, fourteen colonels, twenty-four lieutenant colonels, one hundred and five majors, and three hundred captains or first lieutenants with rank, pay, and allowances of corresponding grades in cavalry arm of the service.

Section 4 of the act of Congress referred to above provides: "That no person shall receive an appointment as first lieutenant in the Medical Corps unless he shall have been examined and approved by an army medical board consisting of not less than three officers of the Medical Corps designated by the Secretary of War."

Vacancies in the Medical Corps are filled by appointment to the junior grade (first lieutenant). After three years service lieutenants, upon passing an examination to determine their fitness, are promoted to the grade of captain.

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Promotions to the grades of major, lieutenant colonel, and colonel is by seniority, but there is an examination for that of major and another for that of lieutenant colonel. Advancement to the grade of colonel takes place without further examination. The surgeon general is selected by the President from among the officers of the corps.

PAY AND EMOLUMENTS.

To each rank is attached a fixed annual salary, which is received in monthly payments, and this is increased by ten per cent for each period of five years service until a maximum of forty per cent is reached. A first lieutenant receives $2,000 per annum, or $166.66 monthly. At the end of three years he is promoted to captain and receives $2,400 a year. In two years more he receives an increase of ten per cent for five years service, making $2,640 or $220.00 per month. After ten years service the pay would be $2,880 annually, or $240.00 per month. The pay attached to the rank of major is $3,000 a year, which, with ten per cent added for each five years service, becomes $3,600 after ten years service, $3,900.00 after fifteen years service, and $4,000 after twenty years. The monthly pay of lieutenant colonel, colonel, and brigadier general is $375, $416.66, and $500, respectively. Officers in addition to their pay proper are furnished with a liberal allowance of quarters according to rank, either in kind, or, where no suitable Government building is available, by commutation; fuel and light therefor are also provided. When traveling on duty an officer receives mileage for the distance traveled, including the travel performed in joining first station after appointment as first lieutenant; the amount allowed is usually sufficient to cover all expenses of journey. On change of station he is entitled to transportation for professional books and papers and a reasonable amount of baggage at government expense. Mounted officers, including all officers of the Medical Corps, are provided with forage, stabling, and transportation for horses owned and actually kept by them, not exceeding two for all ranks below that of brigadier. Horses and horse equipments are furnished by the Government for all mounted officers below the grade of major. Groceries and other articles may be purchased from the Commissary at about wholesale cost price. Instruments and appliances are liberally supplied for the use of medical officers in the performance of their duties. Well selected professional libraries are supplied to each hospital and standard modern publications on medical and surgical subjects are added from time to time; current issues of a number of representative medical journals are also furnished for use of medical officers.

DUTIES AND PRIVILEGES.

Leave of absence on full pay may be allowed at the discretion of the proper authority at the rate of one month per year, and this when not taken may accumulate to a maximum of four months, which at the

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end of four years is then available as one continuous leave. Beyond this an officer may still be absent with permission on half pay. Absence from duty on account of sickness involves no loss of pay.

Medical officers are entitled to the privilege of retirement after forty years service, or at any time for disability incurred in the line of duty. On attaining the age of sixty-four they are placed upon the retired list by virtue of law. Retired officers receive three-fourths of the pay of their grade (salary and increase) at the time of retirement.

When medical officers with the rank of captain approach the period of their examination for promotion to a majority they are usually assigned to duty as attending surgeons at or near the principal medical centers of the United States, to enable them to become familiar with the practice of the leading physicians and surgeons of this country, and to attend medical lectures, meetings of medical societies, etc. These assignments are made for one year only, in order that as many medical officers as possible may be enabled to avail themselves of the advantages thereby afforded. At the end of this tour of duty they are required to make a detailed report to the Surgeon General showing how much of their time has been occupied by their official duties and to what extent they have availed themselves of the advantages offered for professional advancement.

APPOINTMENTS.

Appointments to the Medical Corps of the Army are made by the President after the applicant has passed a successful examination before the Army Medical Examining Board and has been recommended by the Surgeon General. Due notice of the meeting of the board is published in the medical journals.

Permission to appear before the board is obtained by letter to The Adjutant General of the Army, which must be in the handwriting of the applicant, giving the date and place of his birth and the place and State of which he is a permanent resident, and enclosing certificates, based on personal acquaintance, from at least two reputable persons as to his citizenship, character, and habits.

QUALIFICATIONS.

An applicant for appointment in the Medical Corps of the Army must be between twenty-two and thirty years of age, a citizen of the United States, and a graduate of a reputable medical school legally authorized to confer the degree of doctor of medicine, in evidence of which his diploma will be submitted to the board at the time of his preliminary examination.

Hospital training and practical experience in the practice of medicine, surgery and obstetrics are essential, and an applicant will be expected to

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present evidence that he has had at least one year's hospital experience, or the equivalent of this in practice.

EXAMINATION.

The examination will consist of two parts—a preliminary examination and a final or qualifying examination, as hereinafter described, with a course of instruction at the Army Medical School intervening.

Preliminary examination will be required as follows:

(*a*) Physical. The physical examination must be thorough. Candidates who fall below sixty-five inches in height will be rejected. Each candidate is also required to certify that he labors under no physical infirmity or disability which can interfere with the efficient discharge of any duty which may be required. Errors of refraction, if vision is not below 20/40 in either eye, are not causes for rejection, provided they are not accompanied by ocular disease and are entirely corrected by appropriate glasses.

(*b*) Written examination on the following subjects: Mathematics (arithmetic, algebra, and plane geometry), geography, history, (especially of the United States), general literature, Latin grammar, and the reading of easy Latin prose, English grammar, orthography, and composition will be determined from the applicant's examination papers.

This examination may be omitted in the case of applicants holding diplomas or certificates from reputable literary or scientific colleges, normal schools or high schools, or of graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School.

(*c*) Written examination in the following subjects: Anatomy, physiology, and histology, chemistry and physics, materia medica and therapeutics, surgery, practice of medicine, obstetrics and gynecology.

The preliminary examinations will be conducted by boards of medical officers at the large military stations in the United States; the questions in the several subjects being sent from the Surgeon General's office. Formal invitations will be extended to eligible applicants to appear at the most convenient points at which boards are convened and a date fixed for such appearance, which will be uniform throughout the country. No allowances can be made for the expense of applicants undergoing preliminary examinations.

Applicants who attain a general average of not less than eighty per cent in the preliminary examinations will be appointed to the Medical Reserve Corps with the rank of first lieutenant and ordered to the Army Medical School, Washington, D. C., for instruction as candidates for admission to the Medical Corps of the Army. If, however, a greater number of applicants attain the required average than can be accommodated at the school the requisite number will be selected according to relativ

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standing in the examination. An applicant thus selected will, before entering the school, be required to make an agreement to accept a commission in the Medical Corps if found qualified in the final examination and that he will serve at least five years thereafter, unless sooner discharged. Candidates undergoing instruction at the Army Medical School will receive the pay and allowances of first lieutenants including travel pay from their homes to Washington.

An applicant failing in one preliminary examination may be allowed another after the expiration of one year but not a third; withdrawal from examination during its progress, except because of sickness, will be deemed a failure.

The course of instruction at the Army Medical School will be of eight months duration, commencing on the first of October next succeeding the preliminary examination; it will consist of lectures and practical work in such subjects as are peculiarly appropriate to the duties which a medical officer of the Army is ordinarily called upon to perform. During this course of instruction the candidates will be held under military discipline, and character, habits, and general deportment closely observed; if for any reason a candidate should be deemed undesirable he may at any time, on the recommendation of the Surgeon General, be honorably discharged by the President.

The final examinations shall comprise the subjects taught in the school, namely: Duties of medical officers, Medical Department administration and customs of the service, military hygiene, clinical microscopy and bacteriology, military surgery, military and tropical medicine, sanitary chemistry, Hospital Corps drill, operative surgery, ophthalmology, and optometry, x-ray work. It will be preceded by a thorough physical examination.

Candidates who, in their final examination, obtain a general average of eighty per cent and upward shall be given certificates of graduation at the school, and those whose aptitude, as determined by the faculty, is deemed satisfactory and who, in addition to their final examination, pass a successful clinical examination, will be selected for commission in the Medical Corps. Candidates claiming a knowledge of ancient or modern languages, higher mathamatics, or scientific branches, other than medical, may be given a special examination therein.

The relative standing of the candidates thus selected for commission will be determined by the total number of points obtained in the professional subjects of the preliminary examination as well as in the final, clinical, and special examinations, and for aptitude.

Candidates who fail to receive commissions because of lack of vacancies in the Medical Corps at the time of graduation may receive them in the order of their standing as vacancies occur before the graduation of the next class. The remaining qualified candidates, if any, will be

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preferred for selection for volunteer commissions and for assignment on active duty in the Medical Reserve Corps.

Any candidate who, at his final examination, fails to qualify mentally shall not be entitled to a reexamination. Any candidate who qualifies mentally but fails physically shall, upon the recommendation of the Surgeon General of the Army, be given an opportunity to be reexamined physically with the next class, and if then found qualified may be commissioned without further mental examination, his standing in the class being determined by the aggregate of the marks obtained in the examinations already passed by him.

The rapid promotion together with the liberal pay now given all officers of the Army offers such manifest advantages to young physicians that the very best and most representative graduates of our medical schools should be attracted thereby. As accepted candidates for the Medical Corps are appointed first lieutenants of the Medical Reserve Corps during their service and instruction at the Army Medical School there is no delay in receiving the pay of lieutenant, and no final loss of relative rank in the corps to those who successfully pass through the school, as no appointments are made to the Medical Corps except from the successive graduating classes from the school.

The period of instruction at the school, although an anxious time for the candidate, is looked back upon by the graduates as a most pleasant and profitable part of their service. The time of all students is fully occupied, but those who work steadily and faithfully and are well grounded in medicine need not fear failure at the end.

The large number of vacancies created by recent legislation makes it certain that *all* successful candidates will be recommended for commission for several years to come.

It will be to the advantage of the candidate to pass the required examination and secure a commission at as early a date as possible.

Applications for permission to appear for examination, prepared in accordance with requirements before mentioned, should be sent to The Adjutant General of the Army, and when completed will be filed in the Surgeon General's office until the next succeeding preliminary examination shall have been decided upon, when formal invitations to appear before a board will be issued. Applicants are advised to file the necessary papers as early as practicable, in order that the places of examination may be arranged most conveniently to applicants, due regard being had to the interests and necessities of the service.

To illustrate the general character of written questions submitted, a few examples from the records of an Army Medical Examining Board recently convened are hereto appended.

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EXAMPLES OF WRITTEN QUESTIONS.

Preliminary Examinations.

MATHEMATICS.

NOTE.—In each case give a concise explanation of the method by which the result is obtained.

A. Arithmetic.

1. What is the weight (metric) of 8.17 liters of alcohol of a specific gravity of 0.83?

2. Find the greatest common divisor of the following:
84, 252, 168, 210.

3. What is the interest of $475.05 for 1 year, 9 months, and 14 days, at 7.3 per cent?

4. What is the area of a circle the diameter of which is 24 meters?

B. Algebra.

5. Find the value of x, y, and z in the following:
$$5x + 2y - 20z = 20.$$
$$3x - 6y + 7z = 51.$$
$$4x + 8y - 9z = 53.$$

6. Find the value of x and y in the following:
$$\frac{5}{x} + \frac{6}{y} = 2.$$
$$\frac{15}{x} - \frac{3}{y} = 2.5.$$

7. Find the value of x and y in the following:
$$x^2 + xy = 24.$$
$$xy + y^2 = 40.$$

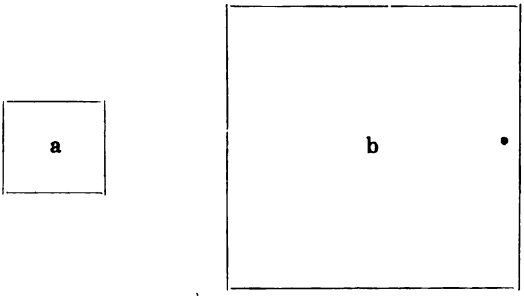
C. Geometry.

8. (*a*) Define the following terms: "Circle"; "Radius"; "Secant"; "Chord".

(*b*) Show by demonstration that the sum of the three angles of a triangle is equal to two right angles.

9. Show by demonstration that the area of a triangle is equal to half the product of its base by its altitude.

10. Construct a square equivalent in area to the sum of the squares a and b.



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GEOGRAPHY.

1. Where is the Strait of Juan de Fuca? The Strait of Magellan? The Strait of Belleisle?
2. Where is the Island of Malta? The Island of Jersey?
3. What territory is embraced in the watershed of the Ohio River?
4. What countries, towns, and principal points are on or near the fortieth parallel of north latitude?
5. Where are the Humboldt Mountains? The Ural Mountains?
6. Where is Pike's Peak? Mount Rainier?
7. Upon what bodies of water would a vessel pass between Philadelphia and Copenhagen?

HISTORY.

1. When, where and by whom was the first settlement made within the present boundaries of the United States?
2. Give a brief account of the French and Indian war.
3. Describe the siege of Yorktown.
   When were the States of Oregon and Washington admitted to the Union?
   What were the respective claims of the United States and England to the territory?
   Describe the principal naval battles of 1812?
   What was the Missouri compromise?
4. Relate some of the events leading up to and occurring during the French Revolution.
5. Who was the first king of the house of Tudor?
   Why was Mary Queen of Scots put to death?

GENERAL LITERATURE.

1. Mention four (4) of the literary men of the "Elizabethan period."
2. Name three (3) well known German poets.
3. Who were the best known literary men of the reign of Queen Anne?
4. Name three (3) of the Latin poets of the time of Augustus.
5. Who was Dr. Samuel Johnson? What was his most important work?
6. Name three (3) of the novels of Thackeray, and some of the principal characters in them.
7. Who was Sir Francis Bacon? When did he live?
8. Name four (4) of the books of Nathaniel Hawthorne.
9. Name three (3) well known American historians, and two (2) of the works of each.
10. Who was Thomas Carlyle? Name three (3) of his more important works.

LATIN.

1. Translate literally into English the following:

Recipe Potassii Iodidi semiunciam, Liquoris Potassii Arsenitis guttas duodecim, Aquae Cinnamomi uncias duas. Misce.

Signetur: una drachma ter in die.

2. Write the following in the form of a prescription. Do *not* abbreviate the Latin words, giving them in full. The quantities should be stated in terms of the metric system:

Mix and make an emulsion of 250 parts of cod liver oil; water, 375 parts; simple syrup, 125 parts; sugar 750 parts; gum arabic, 156 parts. Dose: 15 to 30 grams daily.

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3. Translate literally into English the following anatomical terms:
   1. Flexor profundus digitorum.
   2. Triceps.
   3. Chorda Tympani.
   4. Scapulæ.
   5. Linea media.

4. Translate freely the following, which speaks of the German warriors and their families on the battlefield:

"Hi (infantes) cuique sanctissimi testes, hi maximi laudatores. Ad matres, ad conjuges vulnera ferunt; nec illae numerare aut exigere plagas pavent. Cibosque et hortamina pugnantibus gestant."

5. In the quotation of question 4:
   1. What verb is understood in the first sentence?
   2. What part of speech is "cuique?"
   3. Name the nouns and their cases in the last sentence.
   4. The word "bellatores" is understood before "ferunt," what is the meaning of the word?

6. What nominative pronoun is understood before "gestant" in the last sentence?

ANATOMY.

1. Give the names and relations of bones entered in the formation of the skull.
2. Describe the hip joint.
3. Give the origin, insertion, and surgical anatomy of the superficial abdominal muscles.
4. Describe the lobes and convolutions of the brain with especial reference to cerebral localization.
5. Discuss the anatomy, descriptive and surgical, of the male perineum.

PHYSIOLOGY AND HISTOLOGY.

1. Trace the course of sensory and motor impressions between the brain and foot.
2. What are the causes of the sounds of the heart?
   To what is arterial pressure due? How is it regulated?
3. Describe the mucous membrane of the small intestine, and give the process of absorption of the products of digestion.
4. Describe the corpuscles found in human blood, and discuss their origin and functions.
5. Give the composition of urine and trace the course of each substance through the body.

CHEMISTRY AND PHYSICS.

1. Define the terms: "momentum;" "gravitation;" "gravity;" "weight;" "specific gravity."
2. What velocity will a freely falling body attain in five seconds?
3. What is the principle of the hydrostatic press? Of the siphon? Of the lifting pump?
4. What is a voltaic battery?" What is the source of its energy?
5. What is the "solar spectrum?" Explain the phenomenon.
6. Define the following terms: "Acid;" "base;" "salt;" "valence." "radical."
7. Give the chemical properties of "mercury," Describe a reliable test for it. Mention compounds of mercury used in medicine.
8. Name three (3) metals of the "iron group."
9. Write equations showing the reaction taking place when sodium

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hydroxid is added to each of the following acids: Hydrochloric; sulphuric; acetic.

10. Describe in detail a reliable method for determining the quantity of sugar in diabetic urine.

MATERIA MEDICA AND THERAPEUTICS.

1. What do you understand by specific medicines?

Name five (5) that are so considered, the diseases in which they are effectual, their doses and how given?

2. Mention all the methods by which medication is directed through the skin, examples of each, and the object of each example.

3. Tabulate any classification of medicines.

4. Write a prescription which you are sure to be curative of round worms in a child. Use both apothecaries and metric weights and measures.

5. From surgical point of view what articles of the materia medica should you have always on hand?

SURGERY.

1. Discuss the etiology, symptoms, diagnosis, and treatment of strangulated inguinal hernia.

2. What are the suture materials used in surgery and how are they sterilized?

3. Discuss the etiology, symptoms, diagnosis, and treatment of malignant pustule.

4. Give the surgical treatment of stone in the pelvis of the kidney.

5. Describe in detail the conservative treatment of a compound fracture of the head of the tibia opening into the knee joint?

PRACTICE OF MEDICINE.

1. Give the symptoms and physical signs of aortic insufficiency.

2. Give the differential diagnosis between gastric ulcer and gastric cancer.

3. Give the symptoms and diagnosis of typhoid fever in the first week.

4. Give the symptoms of small-pox.

5. Give the symptoms and physical signs of acute miliary tuberculosis of the lungs.

6. Give the symptoms and differential diagnosis of locomotor ataxia in the preataxic stage.

OBSTETRICS AND GYNECOLOGY.

1. Discuss the changes which take place in the organs of the mother during normal pregnancy.

2. Discuss the causes and treatment of difficult labor.

3. Give the etiology, pathology, symptoms and treatment of puerperal eclampsia.

4. Give the etiology, symptoms, and treatment of cervical endometritis.

5. Give the etiology, symptoms, and treatment of retroflection of the uterus.

THE MEDICAL RESERVE CORPS.

THE Medical Reserve Corps, provided for in Sections 7, 8 and 9 of the Army Medical Reorganization Act, recently passed by Congress and quoted in full in the last number of THE MILITARY SURGEON, is now in course of organiza-

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tion and we are glad to give as wide publicity as possible to the official announcement of the requirements for admission to the Corps.

PAY AND EMOLUMENTS.

Officers of the Medical Reserve Corps have the rank of first lieutenant, mounted, and, when on active duty, receive the pay of that grade, namely $2,000 per annum, or $166.66 per month.

At the end of five years active service an increase of ten per cent is received, making $2,200 annually, or $183.33 per month. This ten per cent increase is given for each period of five years active service, until at the end of twenty years the maximum increase of forty per cent is received, making $2,800 per year, or $233.33 per month.

Officers of the Medical Reserve Corps on active duty, in addition to their pay are furnished with quarters either in kind or by commutation at the rate of $36 per month. Fuel and light are also provided. When traveling on duty mileage is allowed, the amount usually being sufficient to cover all expenses of the journey.

On changing station they are entitled to transportation for professional books and papers, and baggage, including household effects.

Being mounted officers, they are provided with horses and horse equipments when necessary. Groceries and other articles may be purchased from the commissary. Instruments and appliances and professional books and journals are liberally supplied for the use of all medical officers in the performance of their duties.

Leave of absence on full pay may be allowed at the discretion of the proper superior authority at the rate of one month per year. Absence from duty on account of sickness involves no loss of pay.

In addition to a limited number of officers of the Medical Reserve Corps who are on active duty with the Army in time of peace, it is desired to maintain a list of qualified men all over the country who are willing to serve as medical officers in time of emergency. To such men the President is authorized to issue commissions, and it is expected that, as long as they are under commission, they may be relied upon to give service when called. Officers of the Medical Reserve Corps can not be compelled to accept active service, but should it be declined when offered, the commission will be vacated. Nothing prevents Medical Reserve Corps officers serving with the militia, or with the volunteer troops of the United States, or in the service of the United States in any other capacity, and when so serving or employed they are not subject to call for active duty with the Army. Officers of the Medical Reserve Corps who make application for active service may receive such assignment when the necessity exists.

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Approved candidates for the Medical Corps who have fulfilled the entrance requirements, will be temporarily commissioned as first lieutenants of the Medical Reserve Corps until they have passed through the Army Medical School and their fitness for the Medical Corps has been finally determined. (See article upon the Army Medical Corps.)

APPOINTMENTS.

Appointment to the Medical Reserve Corps of the Army is made by the President after the applicant has passed a successful examination before an examining board detailed from the Medical Corps of the Army and has been recommended by the Surgeon General.

Permission to appear before the board is obtained by letter to The Adjutant General of the Army, which must be in the handwriting of the applicant, giving the date and place of his birth and the place and State of which he is a permanent resident. He must also furnish certificates, based on personal acquaintanceship, from at least two reputable persons as to his citizenship, character and habits.

QUALIFICATIONS.

An applicant for appointment in the Medical Reserve Corps must be between twenty-two and forty-five years of age, a citizen of the United States, a graduate of a reputable medical school legally authorized to confer the degree of doctor of medicine, and must have qualified to practice medicine in the State in which he resides.

EXAMINATION.

The examinations for appointment in the Medical Reserve Corps will be held from time to time at convenient places throughout the country and will embrace the following:

1. Physical examination. This will be thorough and will conform to that required for officers of the Army in general.

2. Examination of diplomas, certificates from state examining boards, certificates of membership in medical societies and any other certificates or testimonials which the applicant may wish to submit.

3. An examination on the following practical subjects:

(*a*) Practice of medicine, including etiology, clinical description, pathology, and treatment of diseases.

(*b*) Surgery—principles and practice.

(*c*) Obstetrics and gynecology.

(*d*) Hygiene—personal and general, especially as to the prophylaxis of the more prevalent epidemic diseases.

This examination will be oral and sufficiently comprehensive to determine whether, in the opinion of the board, the applicant is (or is not) qualified to practice his profession under the usual conditions of the military service.

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Should the oral examination in any subject be unsatisfactory the applicant may be required to take a written examination on that subject.

Successful candidates will be recommended to the President for commission.

It is recognized that except for the limited number of Medical Reserve Corps officers who are on active duty in the Army in time of peace there are few material inducements for representative physicians to apply for appointment in the corps. The possession of a commission from the President of the United States, setting forth his confidence in the patriotism, fidelity and abilities of the holder is, however, something that anyone might be proud of, and the contact that the War Department will be able to maintain with the best class of young medical men throughout the land will, it is expected, be of great value in emergency.

It is especially hoped that medical officers of the militia of the various States may be sufficiently interested to secure positions on the Medical Reserve Corps list.

Officers of the Medical Reserve Corps who may desire to enter the Medical Corps of the Army must be between twenty-two and thirty years of age (except in the case of former contract surgeons who entered the service as such before the age of twenty-seven and who were in the service at the time of the passage of the act of April 23, 1908); they must fulfill all requirements for appointment in the Medical Corps that are imposed upon applicants who are not members of the Medical Reserve Corps. Full information in this regard is contained in the preceding article which includes the "Circular of Information in relation to appointment in the Medical Corps of the United States Army, the requisite qualifications, examination of applicants, etc."

The examinations will be held at an early date at a time which will be announced in THE MILITARY SURGEON and meanwhile those who desire to enter the Corps should make application at once.

INSANITY FOLLOWING GUNSHOT INJURY OF THE HEAD

IN the *Deutsche Militaerztl. Ztschr.*, Dr. Kirsch reports four cases of insanity following gunshot injury of the head. In one the brain was injured, in the others only peripheral injury took place. The case with the injury of the brain had a profuse hemorrhage and developed a quarter of an hour later a severe maniacal attack which lasted several hours. Two other cases developed a typical melancholia; both committed suicide. One case developed a marked stupor which lasted three weeks.—F. J. CONZELMANN.

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News of the Services.

Assistant Surgeon A. H. Allen, U.S.N., ordered from duty in connection with the Cape Cruz-Casilda Survey Expedition to duty with Marines at Havana.

Assistant Surgeon D. G. Allen, U.S.N., appointed from June 15, 1908.

Dr. E. A. Anderson, U.S.A., granted two months leave and ordered from Fort Wingate to Fort Sam Houston for temporary duty with troops in the field.

Lieutenant Colonel Daniel M. Appel, U.S.A., left San Francisco for witness duty in Washington.

Captain Bailey K. Ashford, U.S.A., ordered from Hattiesburg, Miss., to Washington Barracks.

Dr. Edward Bailey, U.S.A., ordered to Dyea, Alaska, for annulment of contract.

Assistant Surgeon M. C. Baker, U.S.N., ordered from the Mare Island Navy Yard to the *Ohio*.

Passed Assistant Surgeon M. W. Baker, U.S.N., ordered from the *Colorado* to the *Nebraska*.

Captain Howard H. Baily, U.S.A., ordered from Hattiesburg, Miss., to Washington Barracks; returned to Fort Myer from detached service at Hattiesburg, Miss.

Lieutenant Colonel John M. Banister, U.S.A., appointed member of a board to meet at Washington, D. C., to review proceedings and findings of medical examining boards in the case of medical officers found disqualified for promotion.

Surgeon G. H. Barber, U.S.N., ordered from the Naval Medical School to the Boston Naval Hospital.

Dr. F. M. Barney, U.S.A., ordered to accompany troops from Fort Myer to the maneuver camp, Pine Camp, N. Y.

Assistant Surgeon J. A. Biello, U.S.N., ordered from the Portsmouth Naval Hospital to the *Solace*.

Passed Assistant Surgeon L. W. Bishop, U.S.N., ordered from the *Hancock* to the Indianapolis Naval Recruiting Station.

Passed Assistant Surgeon E. M. Blackwell, U.S.N., ordered from the Naval Medical School before the Naval Medical Examining Board, then to wait orders.

Surgeon E. S. Bogert, U.S.N., ordered from the Naval Medical School to the Newport Naval War College.

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Passed Assistant Surgeon J. M. Brister, U.S.N., detached from the Puget Sound Naval Hospital and ordered to continue other duties.

Surgeon B. W. Brown, P.H.&M.H.S., granted one month and six days leave.

Passed Assistant Surgeon E. M. Brown, U.S.N., granted three months extension of sick leave.

Assistant Surgeon E. W. Brown, U.S.N., ordered from the Naval Medical School to the Norfolk Naval Hospital.

Assistant Surgeon C. W. O. Bunker, U.S.N., ordered from the Naval Academy to the *Arkansas*.

Passed Assistant Surgeon J. T. Burkhalter, P.H.&M.H.S., granted one month's leave.

Dr. D. P. Card, U.S.A., ordered to accompany troops from Fort Jay to the maneuver camp, Pine Camp, N. Y.

Assistant Surgeon D. H. Casto, U.S.N., ordered from the *Maine* to Guam Naval Station.

Passed Assistant Surgeon D. C. Cather, U.S.N., commissioned from July 9, 1907, and ordered from the *Lancaster* to the Kansas City Naval Recruiting Station.

Captain Weston P. Chamberlain, U.S.A., granted twenty days extension of leave.

Dr. A. M. Chase, U.S.A., ordered to accompany troops from Fort Sam Houston to Chickamauga Park, Ga.

Captain James R. Church, U.S.A., granted one month's leave.

Acting Assistant Surgeon G. F. Clark, U.S.N., appointed from June 6, 1908.

Lieutenant Clarence L. Cole, U.S.A., ordered from Fort Thomas to Fort Benjamin Harrison.

Assistant Surgeon H. W. Cole, Jr., U.S.N., ordered home from the Naval Medical School and granted one month's leave.

Surgeon F. C. Cook, U.S.N., ordered from the Naval Academy to the *North Carolina*.

Passed Assistant Surgeon G. M. Corput, P.H.&M.H.S., granted ten days leave.

Colonel Louis W. Crampton, U.S.A., appointed member of a board to meet at Washington, D. C., to review proceedings and findings of medical examining boards in the case of medical officers found disqualified for promotion.

Dr. W. O. Cutliffe, U.S.A., ordered from the Philippines to San Francisco to wait orders.

Dr. W. H. Dade, U.S.A., ordered to accompany escort to Ute Indians from South Dakota to Utah, and return to Fort D. A. Russell.

Major Carl R. Darnall, U.S.A., granted two months leave.

Assistant Surgeon M. Donelson, U.S.N., ordered from the *Porter* to the *Biddle*.

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Assistant Surgeon J. T. Duhigg, U.S.N., ordered to the Los Angeles Naval Recruiting Station.

Passed Assistant Surgeon H. A. Dunn, U.S.N., ordered from the *Nebraska* to the *Colorado*.

Major Basil H. Dutcher, U.S.A., ordered from the Philippines to the United States about July 15; granted two months leave.

Major Rudolph G. Ebert, U.S.A., arrived at San Francisco from tour of Philippine service, and ordered to Vancouver Barracks for duty as Chief Surgeon, Department of the Columbia.

Acting Assistant Surgeon W. W. Eichelberger, P.H.&M.H.S., granted fifteen days leave.

Acting Assistant Surgeon E. W. Fahey, P.H.&M.H.S., granted ten days leave.

Surgeon A. Fahrenholt, U.S.N., ordered from the *Independence* to the *Maryland*.

Passed Assistant Surgeon W. G. Farwell, U.S.N., ordered from the *Lancaster* to Camp Elliott, Isthmian Canal Zone.

Passed Assistant Surgeon A. M. Fauntleroy, U.S.N., ordered from the Naval Medical School to the Naval Medical School Hospital.

Captain Peter C. Field, U.S.A., ordered to accompany troops to the maneuver camp at Chickamauga Park, Ga.

Acting Assistant Surgeon C. E. Fisher, P.H.&M.H.S., granted ten days leave.

Acting Assistant Surgeon C. M. Frissell, P.H.&M.H.S., granted twenty days leave.

Passed Assistant Surgeon G. F. Freeman, U.S.N., ordered from the Naval Medical School to the Boston Navy Yard.

Passed Assistant Surgeon C. H. Gardner, P.H.&M.H.S., granted one month's leave.

Lieutenant Fletcher Gardner, late Contract Surgeon U.S.A., has been appointed Assistant Surgeon in the Indiana National Guard.

Assistant Surgeon H. A. Garrison, U.S.N., ordered from the Philadelphia Naval Hospital to the Guam Naval Station about July 5.

Dr. W. R. S. George, U.S.A., granted ten days extension of leave; returned to Fort Greble from leave; ordered from Fort Greble to Fort Schuyler for temporary duty.

Captain Robert B. Grubbs, U.S.A., ordered to Fort McIntosh.

Colonel Philip F. Harvey, U.S.A., appointed delegate to the meeting of the American Medical Association at Chicago.

Dr. H. E. Hasseltine, U.S.A., ordered to accompany troops from Fort Thomas to Camp Perry, Ohio.

Assistant Surgeon A. B. Haywood, U.S.N., ordered from the Chicago Naval Recruiting Station to Camp Elliott, Isthmian Canal Zone.

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Dr. O. F. Henning, U.S.A., ordered from Fort Sheridan to accompany troops from Chicago, Ill., to San Francisco, Cal.

Assistant Surgeon R. A. Herring, P.H.&M.H.S., ordered from Ellis Island to the Reedy Island Quarantine Station.

Dr. D. D. Hogan, U.S.A., granted two months leave.

Assistant Surgeon C. J. Holeman, U.S.N., ordered from the San Francisco Naval Training Station to the *Charleston*; and later to the *Arethusa*.

Passed Assistant Surgeon J. M. Holt, P.H.&M.H.S., appointed delegate to the meeting of the Oregon State Medical Association at Portland, Oregon.

Captain Paul C. Hutton, U.S.A., ordered to return to Fort William H. Seward from Fort Benjamin Harrison.

Major Merritte W. Ireland, U.S.A., appointed delegate to the meeting of the American Medical Association at Chicago, Ill.

Major William P. Kendall, U.S.A., ordered to accompany troops from Fort Ethan Allen to the maneuver camp, Pine Camp, N.Y.

Surgeon J. T. Kennedy, U.S.N., ordered from the Dallas Naval recruiting Station to the *Independence*.

Assistant Surgeon General J. W. Kerr, P.H.&M.H.S., granted fifteen days leave to be taken between Chicago and Washington.

Acting Assistant Surgeon W. M. Kerr, U.S.N., appointed from June 12, 1908.

Passed Assistant Surgeon W. W. King, P.H.&M.H.S., ordered from the San Francisco Quarantine Station to the San Francisco Marine Hospital.

Dr. C. C. Kress, U.S.A., ordered to accompany troops from Fort Bliss to Leon Springs, Texas.

Lieutenant Colonel Louis A. LaGarde, U.S.A., appointed member of a board to meet at Washington, D. C., to review proceedings and findings of medical examining boards in the case of medical officers found disqualified for promotion, and granted an extension of leave.

Assistant Surgeon H. H. Lane, U.S.N., appointed from May 5, 1908, and ordered to duty in the department of government and sanitation, Canal Zone, Panama.

Assistant Surgeon A. J. Lanza, P.H.&M.H.S., ordered from the *Manning* to the *Rush*.

Lieutenant Colonel Jose Barbosa Leaö, detailed by the Portuguese government to represent it at the Atlanta meeting of the Association of Military Surgeons.

Major William F. Lewis, U.S.A., ordered from Fort Sill to Leon Springs, Texas.

Major Charles Lynch, U.S.A., granted one month's leave; ordered to temporary duty in the Surgeon General's office, and on its completion to revert to status of leave.

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Passed Assistant Surgeon W. N. McDonell, U.S.N., ordered from the Buffalo Naval Recruiting Station to the *Severn* for duty in connection with the Naval Rifle Team.

Assistant Surgeon R. W. McDowell, U.S.N., ordered to the Philadelphia Naval Hospital.

Acting Assistant Surgeon A. A. McLarty, P.H.&M.H.S., granted fourteen days leave.

Acting Assistant Surgeon H. B. McMurdo, U.S.N., ordered to the San Francisco Naval Training Station.

Surgeon G. M. Magruder, P.H.&M.H.S., granted one month's leave.

Dr. M. F. Marvin, U.S.A., returned to Fort Mansfield from two months leave.

Passed Assistant Surgeon H. S. Mathewson, P.H.&M.H.S., granted one month's leave; granted fifteen days leave.

Passed Assistant Surgeon G. M. Mayers, U.S.N., ordered to the Mare Island Navy Yard, and to continue treatment at the Mare Island Naval Hospital; ordered to the Naval Medical School Hospital for treatment.

Assistant Surgeon K. C. Melhorn, U.S.N., ordered from the *Wabash* to the *Yankee*.

Captain Reuben B. Miller, U.S.A., granted two months leave in the United States.

Passed Assistant Surgeon O. J. Mink, U.S.N., ordered from the Naval Medical School to the Chicago Naval Recruiting Station.

Assistant Surgeon C. L. Moran, U.S.N., ordered from the Norfolk Naval Hospital to the Dallas Naval Recruiting Station.

Assistant Surgeon C. B. Munger, U.S.N., ordered from the *Supply* to the *Maine*.

Major Edward L. Munson, U.S.A., appointed delegate to the American Medical Association at Chicago, and granted one month's leave.

Assistant Surgeon E. H. H. Old, U.S.N., ordered from the Canacao Naval Hospital to Washington for examination for promotion and then to wait orders.

Acting Assistant Surgeon H. E. Pearse, P. H.&M.H.S., granted three months leave without pay.

Passed Assistant Surgeon A. E. Peck, U.S.N., ordered home from the Cavite Naval Station.

Captain George P. Peed, U.S.A., ordered to accompany troops from Fort Ontario to the maneuver camp, Pine Camp, N.Y.

Lieutenant Colonel Harry O. Perley, U.S.A., ordered from the Philippines to the United States about October 15.

Captain Robert H. Pierson, U.S.A., ordered to accompany troops from Fort Niagara to the maneuver camp, Pine Camp, N. Y.

Captain William A. Powell, U.S.A., ordered from Jefferson Barracks to the Philippines about July 5.

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Passed Assistant Surgeon C. Ramus, P.H.&M.H.S., ordered from Honolulu to Ellis Island, N. Y.

Major Henry I. Raymond, U.S.A., ordered to return from treatment at Washington to Columbus Barracks.

Major Thomas U. Raymond, U.S.A., ordered to duty as Chief Surgeon, Department of the Colorado, during the absence on leave of Lieutenant Colonel L. A. LaGarde, in addition to duty as Surgeon at Fort Logan.

Assistant Surgeon E. U. Reed, U.S.N., ordered from the *Charleston* to the Mare Island Navy Yard.

Acting Assistant Surgeon H. B. C. Reimer, P.H.&M.H.S., ordered from Boston to New York for special temporary duty and return.

Captain Charles R. Reynolds, U.S.A., arrived in New York from the Philippines on leave.

Assistant Surgeon Norman Roberts, P.H.&M.H.S., granted one month's leave.

Surgeon M. J. Rosenau, P.H.&M.H.S., appointed delegate to the meeting of the Section of Pathology and Bacteriology of the American Medical Association at Chicago, Ill., and granted one month's leave.

Captain Frederick F. Russell, U.S.A., ordered to London, England, for a course of study in the British Army Medical School upon treatment of typhoid fever.

Assistant Surgeon W. F. Schaller, U.S.N., resignation accepted June 1, 1908.

Captain Edward R. Schreiner, U.S.A., assigned to temporary charge of the San Francisco Medical Supply Depot.

Assistant Surgeon F. E. Sellers, U.S.N., ordered from the Naval Academy to the *Nevada*.

Passed Assistant Surgeon H. O. Shiffert, U.S.N., ordered to the *Lancaster*.

Surgeon E. M. Shipp, U.S.N., ordered from the *Illinois* to the *Pennsylvania*.

Captain Joseph F. Siler, U.S.A., ordered from Fort Des Moines to Fort Slocum.

Dr. Nathaniel L. A. K. Slamberg, P.H.&M.H.S., appointed as Acting Assistant Surgeon, for duty at Eastport, Idaho.

Dr. E. F. Slater, U.S.A., arrived at Madison Barracks from leave.

Surgeon A. C. Smith, P.H.&M.H.S., granted one month and fifteen days leave.

Passed Assistant Surgeon C. G. Smith, U.S.N., ordered to the Portsmouth Naval Hospital.

Assistant Surgeon C. W. Smith, U.S.N., appointed from June 15, 1908.

Surgeon G. T. Smith, U.S.N., ordered from the Naval Medical School to the New York Naval Hospital.

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Passed Assistant Surgeon J. J. Snyder, U.S.N., ordered from the Naval Medical School before the Naval Medical Examining Board, then to wait orders; ordered to the *New Hampshire*.

Dr. F. H. Sparrenberger, U. S. A., granted one month and twenty days leave.

Assistant Surgeon P. R. Stalnaker, U.S.N., ordered from the Naval Medical School before the Naval Medical Examining Board, then to wait orders.

Surgeon W. G. Stimpson, P.H.&M.H.S., granted eleven days leave.

Major John H. Stone, U.S.A., ordered from duty with the Army of Cuban Pacification to Newport News for further orders.

Major Paul F. Straub, U.S.A., ordered to report to the President of the Army War College for duty pertaining to the staff ride over the battlefields of Virginia.

Dr. Frank Suggs, U.S.A., returned to Fort Niagara from Madison Barracks.

Assistant Surgeon J. L. Taylor, U.S.N., ordered from the Naval Medical School before the Naval Medical Examining Board, then to wait orders.

Assistant Surgeon G. C. Thomas, U.S.N., appointed from June 15, 1908.

Acting Assistant Surgeon, M. J. Thornton, P.H.&M.H.S., granted one month's leave.

Colonel George H. Torney, U.S.A., granted fifteen days leave.

Captain Albert E. Truby, U.S.A., ordered to accompany one-half of Co. B., Hospital Corps, from San Francisco, Cal., to Murray, Wash., for camp duty.

Dr. G. T. Tyler, U.S.A., ordered to accompany troops from Fort Porter to the maneuver camp, Pine Camp, N.Y.

Surgeon J. F. Urie, U.S.N., ordered from the *Pennsylvania* to the *Illinois*.

Passed Assistant Surgeon W. W. Verner, U.S.N., resignation accepted from June 10, 1908.

Passed Assistant Surgeon C. W. Vogel, P.H.&M.H.S., ordered from temporary duty at San Francisco to San Juan and other quarantine stations in the Island of Porto Rico, and also to certain points in Venezuela, for special temporary duty.

Captain William E. Vose, U.S.A., ordered from Fort Slocum to Fort Des Moines.

Acting Assistant Surgeon W. S. Walkley, P.H.&M.H.S., granted ten days leave.

Passed Assistant Surgeon R. A. Warner, U.S.N., commissioned from May 3, 1908.

Passed Assistant Surgeon B. S. Warren, P.H.&M.H.S., granted two months leave.

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Captain Frank W. Weed, U.S.A., ordered to accompany troops from Plattsburgh Barracks to the maneuver camp, Pine Camp, N.Y.

Contract Surgeon Samuel T. Weirick, U.S. Army, who has been on duty at Alcatraz Island, Cal., has been examined at the Presidio of San Francisco with a view to his appointment as a first lieutenant in the Army medical department. Surgeon Weirick is 65 years of age and upon qualifying for appointment will be commissioned as a junior officer in the regular medical department and at once transferred to the retired list. This is in the line of the decision of the War Department based on the opinion of the judge advocate general that a contract surgeon of the Army who received his original appointment as such before he was twenty-seven years of age may be considered as eligible to appointment to the Army medical department.

Dr. H. R. Weston, U.S.A., ordered to accompany troops from Fort Ethan Allen to the Maneuver camp, Pine Camp, N.Y.

Captain Arthur M. Whaley, U.S.A., ordered from Jackson Barracks, La., to Fort Sam Houston, and granted three months leave.

Dr. J. M. Wheate, U.S.A., granted twelve days leave.

Assistant Surgeon E. C. White, U.S.N., ordered from duty with Marines in Havana home to wait orders.

Surgeon J. H. White, P.H.&M.H.S., appointed delegate to the meeting of the Section of Hygiene and Sanitary Science of the American Medical Association at Chicago, Ill.

Passed Assistant Surgeon M. J. White, P. H.&M.H.S., granted one month's leave.

Assistant Surgeon L. C. Whiteside, U.S.N., appointed from June 15, 1908.

Surgeon G. B. Wilson, U.S.N., ordered from the Naval Medical School to the *Wabash*.

Surgeon G. B. Young, P.H.&M.H.S., appointed delegate to the meetings of the American Medical Association at Chicago, Ill., and the Lake Michigan Water Commission at Grand Rapids, Mich.

Acting Assistant Surgeon J. C. Zeigler, U.S.N., ordered from the Portsmouth Naval Hospital to the Pensacola Naval Hospital.

THE NEW MANUAL FOR THE ARMY MEDICAL DEPARTMENT.—The new manual for the Medical Department of the Army is in course of completion, but cannot be finished until after the publication of the new Army Regulations. It is impossible to say how long it will be, but presumably several months will elapse before the manual will be ready for distribution.

ARMY MEDICAL PACK SADDLE.—The board on transportation for the Medical Corps of the Army has adopted a modification of the Pullman pack saddle. The new arrangement makes use of the leather pannier, but it is to be cut open at each side and enlarged so as to take in the

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army medical chest, which the old one would not do. The fastenings are also to be strengthened to hold the chest in place. The drawings have been sent to the St. Louis depot to have six specimen saddles and panniers made for trial use.

LOW TYPHOID SICK RATE IN THE ARMY.—The Army Medical Department has again broken a health record in this country. Reports received at the office of the surgeon general of the army indicate that the rate for typhoid fever in the army for the past year was less than one-half that of the civilian population of military age in this country. This result is a direct proof of the efficacy of the measures taken by the army medical department in camp and garrison sanitation. It shows what is possible by unremitting compliance with the rules of sanitation on the part of officers of the line.

HYGIENIC APPLIANCES FOR SUMMER MANEUVER CAMPS.—The War Department has purchased some sixteen incinerators for distribution to the various maneuver camps for use during the joint exercises of the regular army and militia during the coming summer. There will also be distributed to these camps twenty-five Darnall filters, which will be subjected to further trial under the practical conditions which are possible. The large portable Forbes water sterilizer now at the Washington Barracks will be shipped to the maneuver camp at Chickamauga Park, Ga., where there will be additional opportunity for the employment of that method of purifying drinking water.

CHIEF SURGEONS OF MANEUVER CAMPS.—The following officers of the Army Medical Corps are detailed as Chief Surgeons at the respective maneuver camps. The Chief Surgeon, Department of California, at Atascadero Ranch, Cal.; The Chief Surgeon, Department of Colorado, at American Lake, Wash.; The Chief Surgeon, Department of the East, at Pine Camp, N.Y.; The Chief Surgeon, Department of the Gulf, at Chickamauga Park, Ga.; The Chief Surgeon, Department of the Lakes, at Fort Benjamin Harrison; Lieutenant Colonel John M. Banister, at Fort Riley; Lieutenant Colonel Aaron H. Appel, at Fort D. A. Russell; The Chief Surgeon, Department of Texas, at Leon Springs, Texas.

REORGANIZATION OF THE MEDICAL DEPARTMENT OF THE RUSSIAN ARMY.—The *Bulletin du Service de Sante Militaire* informs us that there are more than five hundred vacancies in the medical corps of the Russian army and last spring it was necessary to call in retired medical officers and to employ the services of civilian physicians.

The proposed changes in the medical department are as follows:

(a) Medical officers are no longer regarded as employes but are to be organized into a special corps.

(b) Medical officers will have disciplinary authority.

(c) Their pay will be increased and their right to a pension is the same as other officers.

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(d) Upon retirement they will be promoted one grade.

(e) They will periodically receive a special course of instruction and will be given an opportunity for service in large hospitals.

(f) Boards for the examination of medical officers will be convened under the direction of the chief surgeon of each district.

(g) Medical officers will have command of sanitary organizations.

(h) They will wear the same insignia of rank as the officers of the line.

(i) A weekly medico-military journal will be published for the information and instruction of medical officers.

FEMALE NURSE CORPS FOR THE NAVY.—The Senate added to the Naval Appropriation Bill a provision for a female nurse corps as follows:

The nurse corps (female) of the U.S. Navy is hereby established, and shall consist of one superintendent, to be appointed by the Secretary of the Navy, who shall be a graduate of a hospital training school having a course of instruction of not less than two years, whose term of office may be terminated at his discretion, and of as many chief nurses, nurses and reserve nurses as may be needed; Provided: That all nurses in the nurse corps shall be appointed or removed by the Surgeon General, with the approval of the Secretary of the Navy; and that they shall be graduates of hospital training schools having a course of instruction not less than two years. The appointment of superintendent, chief nurses, nurses and reserve nurses shall be subject to an examination as to their professional, moral, mental and physical fitness, and they shall be eligible for duty at naval hospitals, and on board of hospital and ambulance ships and for such special duty as may be deemed necessary by the Surgeon General of the Navy. Reserve nurses may be assigned to active duty when the necessities of the service demand, and when on such duty shall receive the pay and allowances of nurses: Provided, That they shall receive no compensation except when on active duty. The superintendent, chief nurses and nurses shall respectively receive the same pay, allowances, emoluments and privileges as are now or may hereafter be provided by or in pursuance of law for the nurse corps (female) of the army.

LEGISLATION ON RANK AND PAY IN THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.—The Senate on May 15 passed S. 6101, to promote the efficiency of the Public Health and Marine Hospital Service, which provides:

That hereafter the pay and allowances, including longevity, of the commissioned medical officers of the Public Health and Marine Hospital Service shall be the same as the pay and allowances, including longevity and excepting forage, of the commissioned officers of the Medical Department of the Army, as follows: Surgeon general, that of the surgeon general of the Army; assistant surgeons general, that of assistant sur-

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geons general or colonel of the Army; ten medical directors, that of deputy surgeons general or lieutenant colonel of the Army; surgeons, that of surgeons or major of the Army. Provided, That the total number of the commissioned medical officers of the Public Health and Marine Hospital Service shall not exceed 150.

Sec. 2. That when any officer of the Public Health and Marine Hospital Service shall be detailed for duty with the military or naval forces of the United States, under the provision of Section 4 of the Act of July 1, 1902, entitled "An act to increase the efficiency and change the name of the United States Marine Hospital Service," he shall when on such duty be subject to the Rules and Articles of War.

Sec. 3. That when any commissioned medical officer in the Public Health and Marine Hospital Service has reached the age of sixty-four years he shall, upon his own application or in the discretion of the President, be retired and his place on the active list shall be filled by promotion according to seniority.

Sec. 4. That the officers in charge of the divisions of zoology, pharmacology, and chemistry, in the hygienic laboratory shall be entitled to leave of absence and waiting orders as now allowed by law and regulations to commissioned officers of the Service, and their pay and allowances of longevity and commutation shall be the same as those received by professors of the Military Academy at West Point. The division of pathology and bacteriology shall be in charge of a commissioned medical officer, as now provided by regulation.

THE NATIONAL VOLUNTEER EMERGENCY SERVICE.—This Service, instituted in New York City in 1900, has recently taken on a new lease of life under the direction of Major James Evelyn Pilcher, Secretary of the Association of Military Surgeons, who has been elected Director General. The Service is designed to meet the emergencies of peace and war, and is formed upon a military basis. Its work is distributed particularly in three corps: (1). A First Aid Corps, consisting of physicians and laymen and designed for the extension and propagation of first aid in illness and injury throughout the country. (2). A Public Health Corps, intended to promulgate a familiarity with the essentials of hgyiene and sanitation among the general public and to secure the correction of insanitary conditions throughout the country. (3). A Medical Corps, the purpose of which is to combine into a compact organization all medical men who are willing to meet and instruct the public in the measures necessary to cope with emergencies relative to health and life. In this Corps pharmacists and dentists also find a place, as do medical students. In the several corps the relative position of the members is determined by military titles and in the Medical Corps an officer may, by continued membership, attain the rank of Colonel in the Corps. It is believed that this organization satisfactorily solves the problem as to the organization of a national aid society. Applications for membership are being received from all over the country and many valuable features are continually being added. Any one desirous of further information should address the Adjutant General, Brigadier General F. Elbert Davis, The New York Press Club, 120 Nassau St., New York, N. Y.

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Current Literature.

THE SCOPE OF TEACHING THAT SHOULD BE FOLLOWED IN THE NEWLY ESTABLISHED CHAIR OF HYGIENE AND SANITATION IN OUR MILITARY AND NAVAL SCHOOLS.*

BRIGADIER General A. A. Woodhull, United States Army, Retired, lately Colonel, Army Medical Corps, is to be congratulated on his valuable "Seaman Prize Essay" in the *Journal of the Military Service Institution* for March, on "*The scope of teaching that should be followed in the newly established chair of hygiene and sanitation in our military and naval schools, and the practical results to be expected therefrom.*" The public services, for their part, are fortunate in that General Woodhull still continues to give his country the benefit of his broad technical knowledge and long military experience, and is a conspicuous exception to the too prevalent idea that, with retirement, an officer's usefulness must necessarily cease.

It was only to be expected that General Woodhull's essay would be the best one submitted, for the subject was one which he, of all others, is best fitted to discuss. His manual of hygiene has for many years been the guide for line officers in the care of troops; and his service as instructor in hygiene in the school at Fort Leavenworth marked the beginning of the teaching of this subject to the army on a dignified and practical basis. Since retirement, he has continued his activities along the same lines by establishing and conducting a course in personal hygiene for the students of Princeton University.

*The Scope of Teaching that should be Followed in the Newly Established Chair of Hygiene and Sanitation in our Military and Naval Schools and the Practical Results to be Expected Therefrom.—By Brigadier General ALFRED A. WOODHULL, U.S.A., (Retired). The Seaman Prize Essay, 1908. *Journal of the Military Service Institution*, New York, March–April, 1908. 8 vo.; pp. 36.

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The essay itself, as would necessarily be the case, consists of a general outline of the subject, with specific mention of the more important points. If it is to be criticized at all, it must be on the ground that there is not enough of it. The latter fault, however, is necessarily imposed by the limitations of the terms of competition, and it is manifestly impossible, in an article of this character, to set forth in their relative importance all the points which in practice must receive mention. However, the essay contains a vast amount of suggestive material, which is commended to the earnest consideration of all in the military and naval services, and especially to those who now or in the future shall be responsible for the sanitary instruction of our coming generations of army and naval officers. The essay is elegantly written in an instructive and entertaining style.—E.L.M.

STATE BOARD QUESTIONS AND ANSWERS*

WITH the modern development of the state boards of examiners for license to practice medicine in our several commonwealths, a demand has naturally arisen for a discussion of the examinations as conducted by the various boards. This feeling made itself apparent at one time in the publication of a journal devoted to the subject, which, however, failed for lack of adequate support. The need for information upon the subject of these examinations is now however excellently met in the extensive and comprehensive work of Dr. Goepp. The work is a very large one and the questions are so many in number that a reading of the book would seem to furnish in brief outline an excellent conspectus of the practice of the art of medicine at the present day. It will undoubtedly find a very wide sale among medical students and possibly among some medical examiners whose work may be materially assisted by it.

*State Board Questions and Answers.—By R. MAX GOEPP, M.D. 8 vo; pp. 684. Philadelphia and London, W. B. Saunders Co., 1908. Cloth $4.00, net.

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VOL. XXIII, No 2 AUGUST, 1908.

THE MILITARY SURGEON

Original Memoirs.

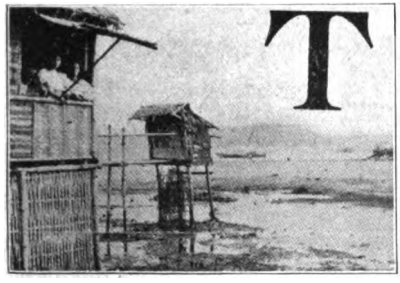
AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS EXPRESSED IN THEIR CONTRIBUTIONS.

OBSERVATIONS UPON TREPONEMA PERTENUIS (CASTELLANI) OF YAWS AND THE EXPERIMENAL PRODUCTION OF THE DISEASE IN MONKEYS.

By CAPTAIN PERCY M. ASHBURN,
MEDICAL CORPS UNITED STATES ARMY,
AND CAPTAIN CHARLES F. CRAIG,
MEDICAL CORPS UNITED STATES ARMY,
CONSTITUTING THE UNITED STATES ARMY BOARD FOR THE STUDY OF TROPICAL DISEASES AS THEY OCCUR IN THE PHILIPPINE ISLANDS.

Part 1.

HISTORICAL.



THEIR discovery of a spiral shaped parasite in the lesions of syphilis, which they named *Spirochete pallida* was announced in May 1905 by Schaudinn and Hoffman. (1). As *Spirochaete*, Cohn, 1872, is an amended spelling of *Spirochaeta*, Ehrenberg, 1834, the name *Spirochaete pallida* became *Spirocheta pallida*. In the same year Vuillemin (2) selected *Spirochaeta*

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pallida as the type of a new genus which he called *Spironema*, the organism found in syphilis thus becoming *Spironema pallidum*, a classification accepted by Schaudinn in 1905. Further investigation developed the fact that the name *Spironema* had been previously used to designate a genus of mollusks, and accordingly could not be used in this connection. Stiles and Pfender (3) proposed the name *Microspironema pallidum* for the organism but before their publication appeared Schaudinn (4) had proposed the generic term *Treponema* and the specific name *Treponema pallidum*, Schaudinn, which is the correct name of the parasite of syphilis.

In February, 1905, Castellani, (5) while investigating the etiology of yaws at Colombo, Ceylon, discovered spirochaetae in the serum of yaws lesions, one of which resembled very closely *Treponema pallidum* in its morphology. In the announcement of this discovery, which appeared in the *Journal of the Ceylon Branch of the British Medical Association*, June 17, 1905, he named the organism *Spirochaeta pertenuis*, but as it undoubtedly belongs to the genus *Treponema*, the correct name is *Treponema pertenuis* (Castellani). Several papers by this investigator have since appeared (6, 7, 8, 9, 10), dealing with the etiology of yaws and a few confirmatory reports of the presence in yaws lesions of *Treponema pertenuis*.

Wellman (11), in South Angola, Africa, was the first to confirm Castellani's observations, finding the organism in scrapings from yaws lesions in one case. He was not aware of Castellani's discovery at the time, July 1905, so that his observations amount to an independent discovery of *Treponema pertenuis*, although the organism was first seen and described by Castellani. In a supplementary note regarding the spirochaetae found in yaws Wellman says (12): "It is significant that this observation which has been spoken of as 'one of the most important discoveries of recent times, considering the fact that the *Spirochaeta pallida* has been found by Schaudinn in syphilis, and considering the relation said to exist between yaws and syphilis, (13), should have been made almost simultaneously in two such widely separated countries as Ceylon and West Africa."

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Further confirmation of the presence of *Treponema pertenuis* (Castellani) in the lesions of yaws have been published by Powell (14), Borne (15), and MacLennan (16). Powell and MacLennan found the organism in but one case but Borne found the treponema in nine of eleven cases examined, and the latter wrote Castellani (17) that he had found them in forty-nine out of fifty-nine cases. Connor (18) was unable to demonstrate *Treponema pertenuis* in two cases of yaws occurring in Manipur State, India, using Leishman's stain, the method advocated by Castellani.

DESCRIPTION.

The following resume is compiled from the published descriptions of the organism by Castellani. The treponema were found by him in the serum from the non ulcerated lesions and in smaller numbers in the ulcerated lesions of yaws. The majority of the organisms are extremely delicate, though some individuals are thicker and stain more intensely, but all are thinner than "*refringens*" or other spirochaetae with the exception of *Treponema pallidum* (Schaudinn). The length varies from a few microns to eighteen or twenty or more. Both extremities are often pointed, but forms are met with presenting blunt extremities or one extremity blunt and the other pointed. Rarely one extremity may show a pear shaped expansion or a loop-like formation. The organisms are spiriliform the number of waves in the spiral varying, but generally being numerous, uniform, and of small dimensions; sometimes an organism is observed having uniform narrow waves for a portion of its length, the remainder being almost or quite straight. Two organisms may be attached together end to end or twisted about one another. Castellani has seen forms indicating longitudinal division, two organisms lying parallel, close together and united at one end; he has also observed a few chromatoid points scattered irregularly in some organisms. With Leishman's or Giemsa's stain the organism takes a pale reddish tint. Castellani also found, in very rare instances, a few oval or roundish bodies, five to eight microns in length, and four to six microns broad, staining purplish or bluish with Leishman's stain, containing chromatin, collected at one point or scattered through-

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out the bodies. He suggests that these bodies may be a developmental stage of the *Treponema pertenuis*. In the open ulcerative sores of framboesia Castellani found, along with *Treponema pertenuis*, three varieties of spirochaetae, as follows:

1. A thick, easily stained form, identical morphologically with *S. refringens*, Schaudinn.

2. A thin, delicate form, with waves varying in size and number, and blunt at both ends. He named this organism *S. obtusa*.

3. A thin, delicate form, tapering at both ends, which he named *S. acuminata*.

Castellani found *Treponema pertenuis* present in the lesions of yaws in eleven of fourteen cases. Regarding its morphological resemblance and its relation to *Treponema pallidum* he stated in 1906 (19): "The spirochaetae found in the non-open lesions and some of those found in open sores of yaws are, in my opinion, morphologically identical with the *S. pallida* of Schaudinn. This is also the opinion of Schaudinn himself who very kindly has examined several of my specimens 'but' that if future investigation will prove that yaws is a spirochaetae disease, the yaws spirochaetae will have to be considered to be biologically different from the spirochaetae of syphilis."

Careful and frequent inquiries among the medical officers of the army and civilian practitioners in Manila, during a period of almost a year, had but confirmed the impression gained from the literature, that yaws is a rare disease in the Philippine Islands, when we were shown some cases at Paranaque, through the courtesy of Dr. Luis Guerrero. At the time of our first visit there we saw four cases and at subsequent visits four other cases, while we were informed by the patients and their friends that the disease is very common throughout all the region about Paranaque; and we have since heard of it as common in certain towns of Tarlac province, Luzon, in the neighborhood of Parang-Parang, Mindanao, and it is quite probable that it is frequently seen and well known by the natives in most parts of the Archipelago. That it is not more familiar to qualified physicans is doubtless largely owing to the fact that it occurs principally in

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the very poor class of persons who as a rule speak neither English nor Spanish and who do not consult physicans, except on very rare occasions of necessity which happen to coincide with almost equally unusual opportunities.

Yaws is usually regarded by these people as a mild and self limited disease and an ordinary attack of it would probably not be considered a justification for seeking qualified medical aid.

Then too, natives of the class being considered are rather fearful of Americans and apt to refuse rather than seek their medical assistance. We have offered free treatment and maintenance to patients if they would come to Manila and enter the hospital, but no one has yet accepted the offer.

We have also seen five cases in San Lazaro Hospital, Manila, all in lepers. We have not had an opportunity to treat any case that we have seen but we have examined all cases and in ten we have examined for *Treponema pertenuis*, finding it in all of them.

Our examinations of yaws cases have been made at relatively infrequent intervals for the reason that we had no cases under our immediate control and supervision, but they embraced inquiries into the clinical manifestations of the disease. In this regard they brought nothing new that is important and the description that we might give of the clinical appearence of the disease would not differ greatly from the description given by most recent authors and even from those given a century ago by Winterbottom and Bateman (20), except we think the large ulcerative lesions are probably due to secondary infections and should not be credited to pure yaws any more than suppuration in syphilitic lesions should be attributed to *Treponema pallidum*.

The observations that we shall discuss herein consist principally, then, of studies of the fresh and stained serous exudate from yaws lesions, which contained the *Treponema pertenuis*, as described by Castellani and others. As the serum presented nothing peculiar or characteristic of yaws except the treponema, the great bulk of our work consisted in observations on that parasite. These observations were made on three varieties of preparations of the serum.

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METHODS OF EXAMINATION

A. Stained smears. These were prepared by removing the yellowish, bees wax like tops from the papillomatous lesions, either by pulling them off entire or by washing them off by friction with wet gauze, and taking on the end of the slide a bit of the clear serum which then exudes from the lesion and making a very thin smear of it across a throughly cleaned slide. Preparations so made were then stained with either Wright's or Giemsa's stain, preferably the latter.

A more profuse flow of serum is obtained if the crust or cap of the swelling be washed away as the friction necessary in this process probably causes an increased flow of blood to the lesion. At any rate, a remarkably profuse flow is so obtained. On the other hand, if the cap be merely pulled off the serous flow may be very slight and it only becomes profuse when the papilloma is rubbed with the end of a slide or a piece of gauze, and even then it is not so abundant and so free from cells as the serum obtained by the first method.

It is remarkable how clean and how free from body cells and bacteria the slides thus made may be found.

B. Fresh Serum. This was obtained in the same way as that for staining except that it was generally allowed to flow into capillary tubes, whence it was blown out on to slides and diluted or not, as seemed desirable, with a small amount of normal saline solution. It was then covered with a thin cover glass, the glass ringed with vaseline and examination made with a high power.

C. Capillary tube preparations were made as indicated above, the tubes being sealed when filled and kept at room temperature (usually about 85° and upward) for variable lengths of time, when they were broken, the contents blown out and examined stained or unstained, or both.

In addition to the examinations made of the serum, in the ways just indicated, we excised two papillomata and sectioned and stained them by Levaditi's method. Examination of such preparations shows the Treponema in great numbers, lying among the epithelial cells, but less numerous among the deeper

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layers of these. The organisms are in many instances aggregated into clumps similar to those obtained in the capillary tubes.

The cells among which the organisms are found always show signs of degeneration, loss of outline, indistinctness of nuclei, and vacuolation. Such areas are localized and present the appearance of lacunas of degeneration.

DESCRIPTION OF TREPONEMA PERTENUIS. (CASTELLANI).

a. Morphology. The morphology of the treponema may be very briefly described by the statement that it is indistinguishable, so far as we can determine, from that of *Treponema pallidum*. In shape, size, staining reactions, appearance of ends, etc., the two are similar, and neither we nor the medical men and investigators, to whom we have shown the organisms and whose opinion we have sought, are able to differentiate them.

In length *Treponema pertenuis* varies considerably, some short forms not being longer than about four microns. It is possible that other forms may be even shorter than this but if so they are not recognizable as treponema. More commonly they are about ten to twelve microns in length while individuals are even longer. Occasionally very long forms are seen, twenty and twenty-five or very rarely even thirty microns, but whether these be single individuals or multiplying or agglutinating forms in which two individuals are joined end to end we cannot yet determine.

The width of the organism is so very slight that we are unable to measure it with exactness. We estimate its width as probably varying from one-sixth to one-half of a micron. If the line of a filar micrometer be brought as near to one side of a loop of the treponema as is possible without covering the latter and the line of the instrument be moved one-sixth or one-fourth of a micron toward the treponema, the side of the loop will be hidden in most instances. Whether it will be completely covered, or more than covered by the line we cannot say. We cannot be more definite than to say that in our opinion the width of the organism is not far from one-fourth micron, but it may be either greater or less. The length of the spiral turns averages very

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close to 1.5 microns, measured from crest to crest. When we first began to study it we thought that *Treponema pertenuis* was probably a trifle wider and a trifle more open in its curves than *Treponema pallidum*, and we yet think that this may possibly be true for the average of large numbers, but our average measurements are the same for both, and there is no form that we have seen that we feel justified in designating as either *pallidum* or *pertenuis*, one and not the other, unless we knew the source from which it was derived.

The curves of both species of treponema vary somewhat in width and regularity but these variations are not peculiar to or even much more common for, either species. In general the curves are fine, about 1 to 1.2 microns in depth, regular and rather rigid. The last named character is especially noticeable in unstained fluid preparations. Here the organisms are seen as fine and fairly rigid spirals, usually straight or almost so. The appearance is the miniature of that produced by a long spiral wire spring. Such a spring may be bent by slight pressures but it at once resumes its straight form when the pressure is relieved, and in either the straight or the bent form it retains its spiral turns.

This description applies particularly to fluid preparations from a few hours to a few days old. In quite fresh preparations the treponema can not usually be seen, or if seen, recognized. Flashes of very motile organisms may be seen, and it is a fair presumption that some or all of them may be treponema, but the motion is so rapid and the glimpse of the organism so fleeting that no deductions can be drawn as to morphological characteristics.

It is important to note that in fluid preparations the morphology of the organisms is much more regular than in stained ones, and it is therefore probable that many of the variations in the latter class may be due to the drying and staining process. This statement applies to our experience with both *pallidum* and *pertenuis* and we think that it lessens the value of deductions based solely on the morphology of stained specimens.

However, since the described morphology of both *Trepo-*

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nema pallidum and *Treponema pertenuis* heretofore rested almost entirely on the descriptions of stained specimens, it is well to consider such specimens here. It should be borne in mind, though, that no matter how many shapes, sizes and forms the stained organisms may show, there is not one of them that can not be produced with the spiral wire spring to which we likened the forms in the wet preparations, if the spring be subjected to forces analogous to those acting on the treponema during the making and drying of the smear.

The stained forms, presenting many variations as to size and shape, may be most conveniently described by dividing them into types or classes. While the length and number of curves vary greatly, the examination of a large number of *Treponema pertenuis* shows the average number of curves to be about eight. Seventeen is the greatest number counted on one organism, two the smallest number. Many individuals show only four or five turns, only a few show more than twelve. All types, shapes and sizes, stain with difficulty, showing best with Giemsa's stain, which gives them a pinkish violet color.

Type A (see drawing), is probably the most common stained type of *Treponema pertenuis*, as it is of *Treponema pallidum*. This may be said to be the classical type of the latter, but the other forms to be described for *pertenuis* may also be found for it.

This type is usually straight or but slightly bent, shows regular and even curves which are very fine, and terminates in narrow pointed ends which have been interpreted as flagella. It stains evenly throughout, though the finely pointed ends show less distinctly than the main part, probably because of their size.

Type B is likewise very common, and differs from type A in having a straight and usually thin portion in some part in its course, frequently near the middle. This appearance has been variously interpreted by different observers; principally as a union of two organisms by their flagella in beginning agglutination, as an incomplete separation of individuals resulting from longitudinal division, or as beginning or incomplete transverse division.

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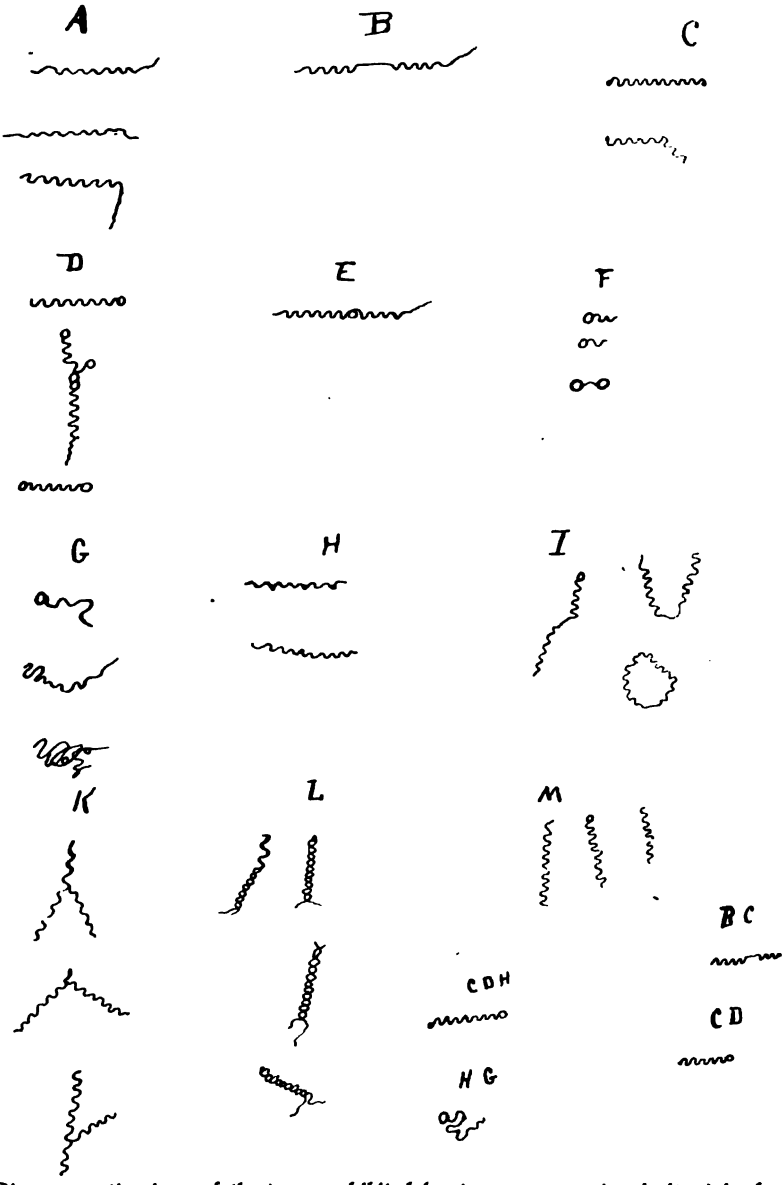

Diagrammatic views of the types exhibited by treponema pertenuis in stained preparations.

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A spiral wire spring may be made to present a similar appearance if one or more of its coils be straightened out by traction and pressure.

Type C corresponds most closely with what we consider the unaltered form as seen in wet preparations. It corresponds to type A except that instead of terminating in finely pointed ends it shows a dot or little knob at one end or often one at each end. This is the appearance seen almost uniformly in wet preparations and we think that it is due to a tight curling of the ends, such as is seen on the shoots of many young plants. This curl may straighten out under the influence of age or drying, and the end then appear as a finely attenuated point or flagellum.

Type D is also a common type and differs from A and C in that one or both ends, instead of showing a finely attenuated point or blunt dot, shows a ring.

This ring frequently appears thicker and heavier than the main part of the body. With the spiral wire we may obtain a similar picture if we turn up an end or the ends of the spiral so as to look down through part of it and view another part from the side. That such bends should frequently be caused by the spreading and drying of the serum is readily believed for the reason that we often see the same thing entirely in profile, i. e., the spiral turns still preserved but the whole spiral so bent as to form two or three sides of a quadrangle.

Type E may present the terminal features of any of the above types, but it also presents in its continuity a complete circular loop, or more than one. The spirial wire assumes a similiar appearance if one turn be pressed down or back.

Type F represents a short loosely curved organism attached to a ring or two rings, one at either end. This, we think, differs from D only in the proportions of the spiral viewed from the end, and in the fact that the part viewed in profile has the regularity of its curves more altered by pressure or drying.

Type G represents various irregular forms which differ from the more characteristic individuals in form only, not in size or staining. It is possible to produce all of them by pressure or traction applied in various ways to the wire spiral.

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Type H embraces the individuals which show dots in some part of their continuity. These dots have been referred to by various writers as chromatin dots, as representing nucleus, blepharoplast, etc. Whether or not they be such or are merely kinks or twists in the organism we do not know. We are unable to determine any constancy in the frequency, number, or localization of their occurrence, and an analogous appearance may be caused in the wire coil by kinking or twisting it.

These various types may be found pure or in a great variety of combinations, such as B C, C D, C D H, H G, A H, etc.

Types A, B, and C are seen in the wet preparations, and of the three types C is by far the most common. It is unusual to see in such preparations any individuals which do not show the knob like ends and the regular curves throughout their length. The other forms D, E, F, G and H we have rarely or never seen. Occasionally we have seen individuals in wet preparations, particularly old ones, which presented a somewhat beaded appearance that might represent type H of the stained specimens.

MOTILITY

In neither fresh or stained specimens have we seen anything that we interpreted as an undulating membrane, nor anything that was differentiated as a flagellum in the distinct manner in which flagella are differentiated on certain bacteria or trypanosomes. The motility of the organisms as seen in the wet preparations probably varies from the extremely active motion already mentioned, which permits one to see a flash of glancing light but no more, to a very sluggish motion which so closely simulates entire passivity as to leave the observer in serious doubt as to whether any motion is present, other than that due to currents in the serum.

When motion has ceased to a sufficient degree to permit of the organism being well seen and clearly identified, it is always slow. It consists of slight rotation on the axis of the spiral, a sort of cork screw motion, and a mild and gentle waving and bending of the entire organism. These two varieties of motion combined cause the organism to pass across the field, to rise and

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sink, necessitating much change of focus, or, if one end of the treponema be attached to the cover glass, or to foreign matter in the field, as is frequently the case, to lash or to swing in an indolent manner from this fixed point.

This motion and what we consider the common form of the organism may best be observed in capillary tube preparations about one day old. In that length of time the accompanying bacteria have not usually multiplied so greatly as to occupy the large part of the field that they do later, while the treponema have ceased to move actively but have usually increased in number and are readily found. In these preparations, or stained ones made from them, what are most commonly called the dividing forms are more frequently seen.

DIVIDING FORMS.

For ease of description we may constitute of these forms additional types I, K, L and M.

Type I is fairly common and as indicated by the drawings, shows some variety in the arrangement of its component parts. Essentially it consists of two or more spirals which are attached one to another by their ends. In some this attachment is such as to be almost or quite indistinguishable from type B.

Type K is also quite common and differs from I in that the attachment is more firm and involves a greater part of the length of the parasites. It is as though the wire of the spiral had been split throughout a quarter, a half, or three quarters of its length, the turns being preserved. However, the two sections of the split part are frequently unequal in length. The appearance presented in such cases has been figured by Siedlecki and Krystalowicz (21) as representing conjugation.

Type L is probably the most striking and pretty form to be seen. In this type the two component parts are intertwined throughout their length, the two ends at one extremity, however, being free. Occasionally all four ends are free but more commonly those at one extremity are fused or they take their origin from a common dot or knob.

These types, I, K and L, have usually been considered indicative of longitudinal division, and they so appear to us.

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Some writers, however, particularly Novy and Knapp (22), have considered it possible that division of Treponema may be by transverse fission and type M, which is very rare, points that way. In this type we see what looks like one organism but it shows a break in its continuity. Rarely more than one break occurs. Whether these apparent breaks are really such, or are merely artefacts, we do not know. They usually look like the latter. We have seen the appearance indicated both in stained preparations and in photomicrographs but not in wet specimens.

VIABILITY.

We have found treponema which showed slight motion and preserved their forms in a capillary tube preparation of serum made thirty-four days prior to the time of its examination. Apparently the organisms were alive but we made no inoculations with them. The bacteria which had been very numerous in other preparations made at the time but not kept so long, had apparently all died out leaving a pure culture of *Treponema pertenuis*.

Undoubted motion is preserved by organisms in tube preparations for a period of several days, though it is always sluggish after a few hours and often after one hour or less.

CULTIVATION.

At the suggestion of Dr. Miyajima we tried making capillary tube preparations of the serum from yaws lesions, in the hope of obtaining agglutination of the treponema, as Dr. Miyajima said that he had obtained it in similar preparations from chancres. Our hopes in that direction were speedily realized, as we obtained marked clumping in the first tube preparation that we made. These tubes were examined on the second, third and fourth days.

We have not since had an opportunity to discuss the matter with Dr. Miyajima, and therefore are not quite sure as to what he meant by the term "agglutination." If he used it as meaning merely the aggregation into clumps of already existing organisms we think that his statement was not sufficiently broad, as it is our opinion that the numbers of organisms in such preparations are greatly increased after one day to a week.

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Usually the increase is manifest within twenty-four hours. At times, however, it takes place more slowly and may only become well marked after several days. The increase in numbers and the clumping are both almost, but not quite, constant. Of the two the increase is, in our opinion, the more constant.

In the two cases of syphilis in which we made the same experiment with serum from the chancre, we obtained a similar result from one.

It is hard to say and still harder to prove that one smear preparation containing the treponema scattered, has as many organisms as another preparation in which they are in clumps: Novy and Knapp, who described agglutination of *Spirillum obermeieri* say that in the case of that organism there is no increase in number. Counts being out of the question, the observers' estimate must be relied upon. Our estimate, based on many examinations of the serum made on the first, second, third, days etc., is that in most instances *Treponema pertenuis* increases greatly in numbers when kept in the serum in capillary tubes, and in some instances the increase seems to occur without the agglutination. Our opinion that the organisms multiply in such preparations is based not only on the greater number of them found in the tube preparations as compared with smears made at the same time, but also on the appearance of the clumps and and the great preponderance of what we consider dividing forms as described under types I, K and L. The appearances of some such clumps and dividing forms will be shown in photo-micrographs accompanying part II.

Exceptionally neither multiplication nor agglutination developed in the tubes, and the failures, while infrequent, are somewhat irregular and do not admit of what we consider a thoroughly satisfactory explanation. In general terms, however, we are of the opinion that they are due to one or both of the following reasons:

1st. Variability in the immunity of the yaws patient and in the amount of antibodies contained in the serum; possibly the variability of immunity may even be local, or toxins elaborated

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by bacteria may be present locally to inhibit the growth. An interesting observation which may bear on this point was made on a case of syphilis.

Serum from a chancre was taken up in tubes on Monday. The chancre was then washed with bichloride solution and dressed with calomel. On Tuesday it was thoroughly cleaned and more serum tubed. The tubes of Monday showed marked increase and clumping of treponema, those of Tuesday showed neither. The patient was not taking any general treatment.

2nd. Variability in the bacterial content of the tubes and consequently in their content of soluble toxins.

While it is readily possible to make fresh smear preparations of yaws serum which show very few or no bacteria, it has not been possible, in our experience, to obtain a serum really free from bacteria, and in the sealed tubes these multiply enormously. However, the fact that both multiplication and clumping occur in the great majority of tubes encouraged us in the idea that we might cultivate the organisms indefinitely, and as the favorable medium seemed to be the serum of susceptible persons or animals, we endeavored to obtain growth on monkey blood and on ascitic fluid from a patient who was suffering from cirrhosis of the liver and who gave a history of syphilis. The ascitic fluid was used in two ways, plain and heated to 60°C. for thirty minutes to destroy complement. In none of these media did we obtain any growth of the treponema, though bacteria grew in all. We did not have the opportunity to repeat these experiments, however, and we are not at all convinced that cultivation of the treponema is impossible.

PATHOGENESIS.

It has been stated by different authors that yaws is inoculable on lower animals, notably cats and monkeys, and that it is inoculable from person to person. We have made no inoculation experiments on persons, and none on lower animals other than monkeys *Cynomolgous philippinensis* (Geoffroy). Of these we inoculated five, using serum from the yaws of three different patients. All five of the monkeys developed yaws les-

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ions of a sufficiently characteristic appearance to permit of diagnosis based on that alone.

In addition to this typical appearance we found *Treponema pertenuis* in all of the lesions. The organisms did not differ in any demonstrable way from those seen in serum from human lesions. In numbers, measurements, staining reactions, shape and motion they were similar.

The monkeys, however, did not show the secondary lesions of a generalized infection, nor could we, in the instance in which we tried it, induce yaws in other monkeys by inoculating them with the blood or splenic juice of an infected animal. The yaws lesion did spread and in that way give rise to what might be termed secondary lesions, but the spreading was always by continuity and we observed no evidence to make us think that it was ever through a general blood or lymph infection.

BIOLOGICAL POSITION OF TREPONEMA PERTENUIS

We see no reason to doubt that the biological position of *Treponema pertenuis* is as close to that of *Treponema pallidum* as one species may be to another. The almost overwhelming weight of scientific opinion at the present time seems to leave the latter organism where Schaudinn placed it, among the Protozoa.

Its protozoal nature is not universally accepted, however, and probably will not be for some time to come. Our opinion is that both organisms are protozoal, but while so eminent a zoologist as Stiles (23) concedes to others the right to regard *pallidum* as of vegetable nature, we feel that we may safely grant the same latitude as regards *Troponema Pertenuis*. What we regard as more easily determinable are the following propositions:

1st. That *Treponema Pertenuis* is constantly found in the serum from yaws lesions.

2nd. That it can at the present time be differentiated from *Treponema pallidum* only by the consideration of the lesion from which it is obtained, or by inoculation of certain animals.

3rd. That its many forms in stained preparations are all explainable on the supposition that it is a regular spiral, often deformed by the forces or processes concerned in the spreading, drying and staining of the smears.

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4th. That, as will be shown more fully in Part II of this paper, the inoculation of serum containing this organism causes yaws in monkeys, and that the organism is again found in the lesions of the inoculated animals.

5th. That *Treponema Pertenuis* is the cause of yaws.

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A REPORT OF FOUR OPERATIONS ON THE STOMACH.

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THE cases here reported have occurred in my service at the United States Marine Hospital at Baltimore during the past two years.

CASE I.—CARCINOMA OF ESOPHAGUS—GASTROSTOMY. J. P.; aged 55 years; native of Scotland; was admitted January 22, 1905. Family history negative. Has always enjoyed good health.

Previous Medical History: In 1871 he fell from a loft and fractured the sternum but suffered no subsequent inconvenience. A year and a half ago he began to cough and had a "tickling in his throat." Three months ago he began to suffer from difficulty in swallowing. At date of admission is able to swallow only liquids and soft solids. Food is sometimes regurgitated. Has occasional attacks of dyspnea.

Physical Examination: Patient fairly well nourished; chest barrel shaped; lungs emphysematous; manubrium depressed at site of old fracture; abdominal organs apparently normal. A number 22 soft catheter can be passed through esophagus; a number 29 catheter meets with obstructions at a distance of eleven and one-half inches from the incisor teeth.

Patient was advised to grind up his food, to use liquid nourishment freely and to return for operation when difficulty of swallowing increased and nutrition began to suffer.

Readmitted August 21, 1905. Since the last examination dysphagia has steadily increased, patient has lost flesh and is anxious for surgical relief.

Gastrostomy performed September 2nd. The abdomen was opened through the left rectus muscle, a portion of the anterior wall of the stomach delivered, a rubber tube inserted through a puncture and the stomach wall invaginated around it by two purse-string sutures reinforced by a double row of Lembert sutures. The stomach wall was stitched to the peritoneum and transversalis fascia and the muscle, fascia and skin closed by layer sutures, leaving room for exit of tube. Healing by primary union.

Patient was fed regularly through the gastric fistula and enjoyed comparative comfort. Control of the fistula was difficult, however, and regurgitation frequent, especially during fits of coughing. During October difficulty in breathing increased. Death occured November 24, 1905, during an attack of dyspnea.

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At the necropsy a carcinoma of the esophagus was found just below the bifurcation of the trachea. The lumen of esophagus was practically occluded and the primary bronchi were involved in the growth and greatly flattened. The fistulous communication between skin and stomach was direct and not valvular, the invagination of the stomach wall having apparently been flattened out.

CASE 2.—CARCINOMA OF ESOPHAGUS.—GASTROSTOMY. J. L.; aged 57; native of Germany; admitted May 21, 1907. Family history negative. Previous health good.

Clinical History: He began to have dysphagia about two months ago. Since then he has lost twenty-two pounds. Two weeks ago his voice became weak and husky and he has since had several prolonged attacks of coughing. Has been unable to swallow food or drink of any kind for past four days.

Physical Examination: Small and frail physique; marked emaciation; cachectic appearance; small area of dullness in second intercostal space near right border of sternum; a firm, slightly moveable mass can be felt behind right sterno-clavicular joint by deep pressure in the root of the neck; a similar deeply placed mass can be felt by pressure between the insertions of the sterno-mastoid and trapezius muscles. A blowing murmur, systolic in time, is heard at the apex of the heart.

The vital indication being urgent, gastrostomy was done the next day, May 22nd. Abdomen opened by a small incision through the outer border of the left rectus muscle, and the anterior wall of the stomach drawn out through the incision so as to form a cone about three inches long. Two strong silk ligatures, placed close together, were passed through the apex of the cone in order to control it. An incision three-fourths of an inch long was made through the skin only over the cartilage of the left seventh rib and made to communicate with the abdominal wound by tunneling under the skin. The cone of stomach wall was then drawn into the second wound by traction on the silk ligatures, and its apex sutured to the skin. The peritoneum was sutured to the base of the cone, the rectus and fascia sutured snugly around it and the skin sutured over all. The ligatures in the apex were left in. Two days later the apex of the cone was opened between the two ligatures, the latter were removed and a tube inserted into the stomach.

Primary healing: The resulting fistula was eminently satisfactory, and owing to its valvular nature control by an abdominal belt and pad was perfect.

Patient died August 26, 1907, as a result of abscess of the right lung. The abscess cavity was evidently located at the site of the area of dullness noted above. No necropsy.

CASE 3.—CARCINOMA OF PYLORUS.—POSTERIOR GASTRO-JEJUNOSTOMY. J. N.; negro; male; native of Indiana; aged 52; admitted November 6, 1906.

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Family history and previous medical history unimportant.

Clinical History: For past three months has suffered from soreness in abdomen, anorexia, debility, constipation and loss of weight. During the past three weeks has vomited at irregular intervals, always about an hour after eating. Vomitus very acid. Has no pain after eating but occasionally after vomiting.

Physical Examination: Body emaciated; heart and lungs negative; liver dullness slightly diminished; no tenderness on pressure in any part of abdomen; no tumor can be detected; sense of resistance on pressure in epigastrium to right of median line; slight relative fullness in this region on inspection by oblique light. Stomach washed out and test breakfast given.

Examination of filtered Stomach Contents: Showed absence of free HCl, diminution of combined HCl, presence of lactic acid, presence of Oppler-Boas bacillus. These tests were repeated at intervals with practically the same result. Salol, one gram, was administered and the urine tested with ferric chloride seventy-five minutes later; reaction negative.. Urine tested at end of thirty hours showed marked reaction with ferric chloride. Motility of stomach apparently defective.

Exploratory operation October 21. Median incision above umbilicus. A dense cancerous growth of the pylorus was found extending toward the lesser curvature to a moderate degree and involving most of the first portion of the duodenum. On account of the extensive involvement of the duodenum, an attempt at extirpation seemed unwise. The transverse mesocolon was therefore torn through, the posterior wall of the stomach delivered and a gastro-enterostomy done by uniting the most dependent portion of the greater curvature to the first portion of the jejunum without forming a loop.

Recovery from operation was uneventful.

November 12. Salol test repeated. Urine shows reaction with ferric chloride at expiration of seventy-five minutes. No reaction at end of twenty-seven hours. The passage of food from the stomach to the duodenum appears, therefore, to be unimpeded.

December 30. Test meal given. Examination of stomach contents showed no change except a distinct diminution in the amount of lactic acid. Free HCl absent. Combined HCl diminished.

Patient was discharged from observation January 22, 1907. He had vomited but once since the operation, all subjective symptoms had improved and he had gained eleven pounds in weight.

CASE 4.—ULCER OF DUODENUM.—POSTERIOR GASTRO-JEJUNOSTOMY. W. M.; white male; native of Germany; aged 21; entered hospital May 15, 1907, to secure treatment for chancroid and bubo.

Family history negative.

Previous Medical History: Three years ago he had a prolonged attack

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of epigastric pain during which he vomited a large quantity of blood. He had two subsequent attacks, the last occurring in February of the present year. Vomited small quantities of blood-stained mucus during these later attacks. Ten days ago contracted chancroid followed by suppurating bubo.

Physical Examination: Well nourished. Chancroid on prepuce and suppurating bubo in left groin. Examination otherwise negative.

May 16. Has sharp pain in epigastrium, with tenderness and vomiting. Vomitus contains mucus but no blood. Tenderness most marked in epigastrium and right hypochondrium. No muscular rigidity. This attack lasted three days.

On May 25th abdominal symptoms returned; on the 26th they increased in intensity and blood appeared in the vomitus. Complained of some pain to the left of epigastrium. 29th. Passed blood-stained stool. On the 30th pain was greatest just below right costal border. Vomiting of bloody mucus continued. All symptoms declined June 1st to reappear June 6th. Vomitus containing bile, mucus and blood. During these attacks stomach feeding was suspended and nutrient enemata given. During the intervals peptonized milk was given by mouth.

June 7. Patient's condition serious and strength failing. Immediate exploratory operation decided upon. After opening the abdomen palpation of stomach and duodenum failed to disclose any induration and the peritoneal coat of the stomach was normal. The duodenum and pylorus were bound down by adhesions. Marked engorgement of the vessels on the anterior surface of the duodenum and pylorous was noted, contrasting well with the normal peritoneal coat of the stomach. In order to divert the food stream from the probably ulcerated mucosa of the duodenum, a posterior gastro-jejunostomy was done, and the abdomen closed. Post operative history was uneventful, excepting the vomiting of mucus and bile on the 12th, and an attack of epigastric pain on the 14th. After this date recovery was rapid. Discharged apparently well, July 6, 1907.

The diagnosis of duodenal ulcer, while not absolutely demonstrated, seems to be warranted by the history of the case and the findings at operation.

REMARKS

In Case 1 the fistula established by direct implantation of the tube and invagination of the stomach wall (Kader's Method), was very unsatisfactory and leaky, especially during fits of coughing.

In Case 2, operated on by the Ssabanajaw-Franck method, the resulting fistula left nothing to be desired.

This operation can be rapidly done and all danger of con-

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taminating the peritoneum can be eliminated by opening the apex of the stomach cone two days after the operation. A point of value in connection with this operation has been brought to my attention by Dr. J. M. T. Finney, of Baltimore, viz., taking up the cone of stomach as near the cardiac orifice as may be practicable without undue tension, in order that the normal conditions may be imitated as closely as possible.

Cases 3 and 4 are examples of the conditions for which gastro-intestinal anastomosis is most commonly done; in the one case to prolong life and relieve distress in gastric cancers which are not susceptible of removal, in the other as a curative measure in chronic ulcer of the stomach and duodenum, short-circuiting the digestive tract and permitting the ulcerated area to heal by diverting the food stream and eliminating spasm of the pyloric end of the stomach.

During the past five or six years much has been written by surgeons of wide experience upon the surgical treatment of gastric disorders, and much difference of opinion will be found among them. Certain points, however, may be said to be fairly well established. It may not be amiss to briefly summarize them.

The work of Cuneo has shown that the lymph drainage of the pyloric end of the stomach is distinct from that of the fundus and the major portion of the greater curvature. For this reason a cancer of the pylorus or lesser curvature may be removed in the earlier stages with a fair prospect of permanent relief. If therefore the tumor is located, as it usually is, in this portion of the stomach, if it is limited in extent, if the stomach is fairly moveable, and there are no secondary growths in the neighboring organs, partial gastrectomy should be done. If the stomach is very adherent or secondary growths are present, gastro-enterostomy gives the best prospect for prolongation of life in the cases in which the pylorus is involved. In cases of stricture of the pylorus following ulceration and in which the pyloric end of the stomach shows marked and extensive induration, excision of the diseased area seems to be the operation of choice inasmuch as it has been shown that these indurated areas

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are especially liable to cancerous degeneration. In the majority of the cases of benign stricture of the pylorus with secondary dilatation of the stomach, the choice will lie between the pyloroplasty of Finney and a gastro-enterostomy. The former, it appears to me, more nearly aproximates the normal conditions. Both operations have given excellent results.

In chronic ulcer of the stomach or duodenum posterior gastro-enterostomy gives dependent drainage and permits the diseased area to heal by providing physiological rest. In acute ulcer results have not been encouraging, except in cases of perforation. In chronic ulceration it is advisable to refrain from interference while active hemorrhage is going on.

In these operations on the upper digestive tract there is less chance of peritoneal infection than in similar interference with the lower bowel. The stomach and duodenum are sterile under ordinary conditions, especially while fasting, and accidental soiling of the peritoneum is consequently less dangerous.

THE MORAL INFLUENCE OF THE ARMY.

A DISCUSSION by Captain Scarano, of the Italian Sanitary Corps, calls attention to the fact that criminal statistics show that in 1884, 3,339 soldiers were convicted by court martial and in the decade from 1884 to 1894, 2,000 were convicted and from 1894 to 1904 only 1,436 were convicted, 228 were tried twice and 172 committed their offense before joining their regiment. These figures indicate that the army exercises a very good moral influence. Scarano emphasizes, and justly too, that it would be a great injustice to reject every recruit with a neurotic or vesanic taint. Observation in the service will tell whether these men are fit or unfit for service. Military surgeons are capable of doing their duty in this branch of medical science. The moral development of the soldier does not lag behind the physical in the army.—FRED J. CONZELMANN.

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THE DISABLED FOOT IN THE MILITARY SERVICE AND ITS DIAGNOSIS BY THE USE OF THE SKIAGRAPH.

By LIEUTENANT GEORGE H. RICHARDSON,

MEDICAL RESERVE CORPS UNITED STATES ARMY.

WHEN one is called upon to determine whether or not an applicant for enlistment has deformed feet there at once arises a question where the personal experience of the examining surgeon and his ability to weigh all the apparent symptoms is of the greatest importance.

A superficial examination would naturally reject all excesive conditions, yet there are many cases of a lesser degree of deformity which particularly need careful scrutiny, as it is from this class we get the great number of candidates for discharge on certificates of disability.

The usual method employed in the examination of the recruit is to ask him to raise himself on the toes which any one can readily do by a sudden spring no matter how weak the muscles or the arch of the foot may be. This should be modified by requesting the applicant to raise the body slowly and repeatedly, allowing the heel to remain some time from the floor. The mobility of the ankle joint for inversion and eversion should also be determined and a rigid inspection made for callosities or bunions for these show a tendency on the applicant's part to select poorly fitting shoes or a departure from the ordinary shape which the average shoe will not supply. The plantar surface of the feet will often show callosities particularly if the applicant suffers from a slight hyperidrosis.

The study of orthopedic surgery is recognized by most physicians to be a special branch of medicine requiring a mechanical temperament for its proper understanding, and is often neglected for other branches that do not demand this particular accomplishment. Perhaps it is for this reason that the average practi-

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tioner drifts away from this class of patients, treating indifferently the minor cases, smiling at the one who consults him for corns, and referring the chronic, almost incurable sufferer to a specialist for proper care.

Digressing from my subject it would seem that some form of special attention similar to that used in the British army, might with benefit be instituted among our troops, whereby the soldiers' feet could be watched and carefully treated by a qualified enlisted man who should receive "extra duty pay" for his services. This plan could include the selection of proper fitting shoes for those who through ignorance select sizes unfit for the shape of their feet and would anticipate the production of corns and bunions. The importance of this procedure was impressed upon me in reading an article "The care of the soldier's feet" by Lieutenant Bradley, R.A.M.C. in the March, 1907 number of the *Journal of the Royal Army Medical Corps.*

In looking at the Surgeon General's report for the fiscal year ending June 30th, 1906, we find that 177 applicants, or two and one-half per cent of those seeking admission into the service were rejected owing to their having flat feet, and that nineteen men, one per cent of those discharged on surgeon's certificate of disability had a similar defect, while thirty-five men or about three per cent were discharged for bunions and corns. Over four per cent, therefore, of all men discharged had some form of disabled feet. In how many of these the disability existed prior to enlistment I am unable to determine, yet I am satisfied, from the cases I have examined, that fully one-half could have been discovered at the time of their acceptance had the defect been more carefully investigated and appreciated.

An epidemic of "flatfootedness" occurred in this post, Presidio of San Francisco, California, in the fall of 1906 and several men were discharged the service on account of this trouble. As four of these men came from one company the question of malingering should not be overlooked, it being a significant fact that soldiers will often assume similar disabilities if they find a discharge easy to obtain, and as many men are comparatively flatfooted, particularly the colored troops, and some are not above

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falsification when giving their subjective symptoms, one should be extremely careful before expressing an opinion or even suggesting the likelihood that the applicant has any defect whatsoever.

The recent appearance of three soldiers on sick report at this post complaining of pain in their feet while walking or drilling has brought to my mind the question whether a skiagraph, showing the exact relation of the bones of the foot, would be of benefit in the diagnosis of these cases with the idea that we could accurately measure the arch and make apparent the nature of the affection. I realize that a study of many cases will be necessary in order to arrive at a positive conclusion, and I submit this article with the hope that some one, better informed than I, in this branch of medicine, may be sufficiently interested to make this question the subject of a more extensive investigation than the limited material at my command will permit.

The histories of the three cases are herewith submitted together with the skiagraph of the right foot of each man taken when standing. It would be but just to state that two of these men had endeavored to obtain their discharge from the service by other methods before appearing on sick report with disabled feet. How far this fact has modified their subjective symptoms one can only surmise, yet it argues more strongly for some definite means of recognizing the deformity either before these men are enlisted or at the recruiting depot before they are sent to permanent station.

Case No. 1.—B. E. J. private, 38th Company Coast Artillery, age 23, born in Davis County, Indiana, where malaria is very prevalent and where as a child he had several severe attacks. Has three brothers one of whom has trouble with his feet. Began manual labor early in life as a teamster in a logging camp which line of work he followed until his enlistment, January 1906. He was first sent to Jefferson Barracks, Mo., where he was employed on "extra duty" as teamster for two months. Upon his arrival at this post was placed in the recruit squad and noticed at once that his feet were sore and painful after each exercise. He remained however on duty thinking that his feet would improve as he became accustomed to the work. Finding that he could no longer do duty without limping on account of the pain he came on sick report April 21st, 1907. He complained also of his feet perspiring excessively requiring a daily change of socks and that they

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felt numb. Examination shows a turning out of the feet with a prominence of the internal malleoli. The arches of the feet seem completely obliterated and the range of motion, particularly voluntary adduction, very limited. The skiagraph marked Fig. 1 shows a distance of 6.5 c. m. from the top of the astragalo-scaphoid junction to the floor and of 1.1 c.m. from the calcaneo-cuboid articulation to a base line running from the os-calcis to the first matatarsal.

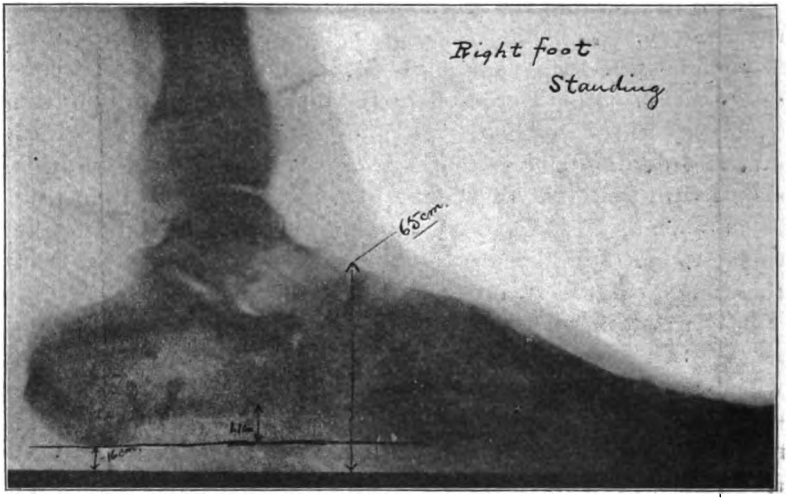

Fig. 1. Skiagraph in case of flat foot.

Case No. 2.—L. M. N., private, 65th Company Coast Artillery, born in Idaho, twenty-three years ago. Ever since boyhood has been engaged on the range caring for cattle and riding horseback constantly. About two weeks prior to his enlistment was employed at manual labor requiring him to be on his feet several hours a day and he found he was unable to keep the position owing to the pain in his feet. His father has similar trouble and he says that it is recognized and called "stirrup foot" among men employed as cowboys. He enlisted July 17th, 1906, in Denver, Colorado, and was sent to this post in August. He was placed in the recruit squad at once and given daily drills. He noticed during the first week that after drilling he had pain at the base of both great toes and his feet were tired and aching. This painful condition gradually increased until January 22, 1907, when he was sent to the U.S.A. General Hospital for an operation for varicocele. He was returned to duty on April 28th, 1907, and two days later came on sick report claiming that he was unable to perform his duties owing to pain in the feet. Examination shows a peculiarly shaped foot as

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follows: The arch of the foot is exaggerated especially on the inner border. The balls of both great toes seem enlarged and he claims are painful to pressure. All the toes are in a condition of dorsi-flexation and none of them touch the floor when he is standing. He is unable to raise himself on his toes without great effort and in doing so says that it gives him pain in the first metatarso-phalangeal joint and in the arch of the foot. The measurements as noted in Fig. 2, show a distance of 7.8 c.m from the astragalo-scaphoid junction to the floor, and a distance of 1.8 c.m. from the calcaneo-cuboid junction to the base line.

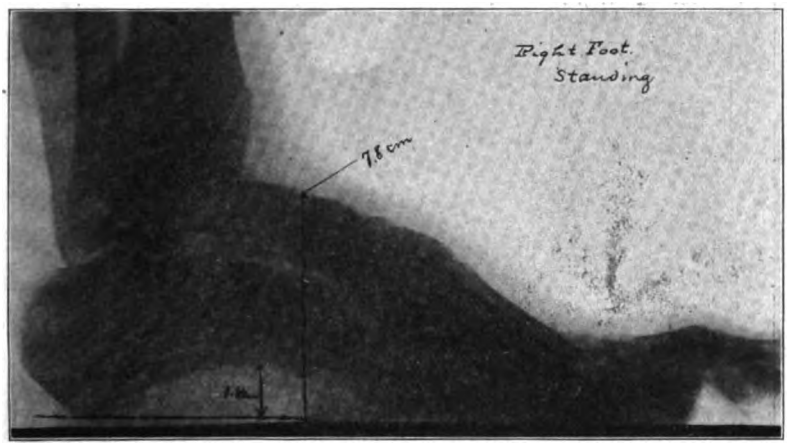

Fig. 2. Skiagraph in case of flat foot.

Case No. 3.—R. C. B., private, 65th Company, Coast Artillery, aged twenty-three years. Left school at sixteen and worked on a farm until he enlisted. About three years ago sprained his left ankle and was lame for about ten days. Enlisted January 22nd, 1906, at St. Joseph, Mo., and was at Jefferson Barracks Recruiting Depot for one month, arriving at Presidio of San Francisco, California, in March 1906. Was admitted on sick report April 17th, 1906, and sent with a diagnosis of "sprain, right foot, incurred in gymnasium at Jefferson Barracks in January 1906" to the General Hospital where he remained about two months. Was returned again to hospital in June 1906 with the same diagnosis, and again on April 29th, 1907. He complains of pain in the arches of both feet and in both ankles. This pain he says is worse at night and that he is often unable to sleep on account of it. He limps on walking and forced extension of the feet he states is painful.

Examination:—Inspection is practically negative there being a seemingly well formed arch and no external evidence of any deformity. A ski-

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agraph marked Fig. 3 shows a measurement of 6.8 c.m. from the astragalo-scaphoid junction to the floor. It will be noted in this picture (Fig. 3) that the os-calcis reaches the floor, while in Fig. 1 it is .6 c.m. from the same. This would make a difference of about .5 c.m. in its favor as against the measurement in Fig. 1 showing the relative relations of 6 c.m., 8 c.m., and 7.8 c.m. in the different cases. The line connecting the calcaneo-cuboid articulation to the base line measures 1.5 c.m.

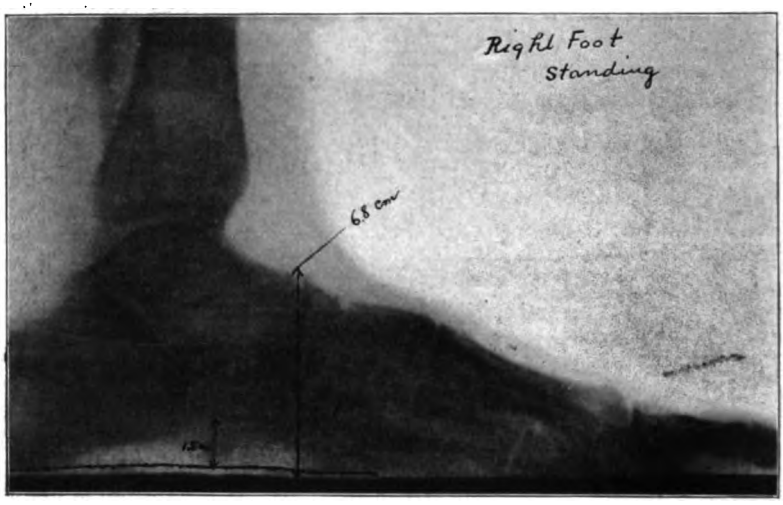

Fig. 3. Skiagraph in case of flat foot.

The skiagraphs in these cases were taken at the United States Army General Hospital, Presidio of San Francisco, Cal., by Sergeant 1st Class Silverthorne, Hospital Corps, United States Army.

PROGNOSIS IN GUNSHOT WOUNDS OF THE ABDOMEN.

WE learn from an article by von Oettingen that the prognosis in gunshot wounds of the abdomen in any given case must be made with consideration of the following factors: 1. Anatomical relations of the wound; 2. Condition before transport; 3. Manner of transport; 4. Treatment.

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AUTOINTOXICATION.

By WILLIAM FRANCIS WAUGH, M.D.,
CHICAGO, ILLINOIS.
FORMERLY ASSISTANT SURGEON IN THE UNITED STATES NAVY.

WHILE visiting the late meeting of the Association of Military Surgeons at the Jamestown Exposition, I listened with deep interest to several papers which described the methods being devised, for the disposal of sewage and garbage, by these fine sanitarians in the Army, Navy and Marine Hospital Service. It is no longer possible for the modern army to bury its sewage, or to attempt to disinfect it. Nothing satisfies the modern army sanitarian now but absolute destruction of these substances by burning; and this applies to urine as well as to fecal matter. So important is this now considered, that the remark was made at the public meeting, that if a suitable provision was made for the destruction of the discharges, the army sanitarian would enable the commander of the forces to encamp them wherever he thought desirable for military reasons, up to the very gates of hell.

The lesson to be learned from this matter is the tremendous importance of the urine and feces, as related to the health and efficacy of the army. All the other causes of deterioration put together, including wounds in battle, the effects of alcoholism and of venereal disease, become insignificant as compared to those which follow the ingestion of fecal matter by the soldier, or infection transferred from it to him by means of flies.

As I noted these things, the thought came to me—when will it occur to these scientific gentlemen that the peril emanating from fecal discharges outside of the body, may possibly in some degree be incurred by the soldier while this material is still inside of his body?

The ideal conditions contemplate the complete digestion of each day's meals during that day, and the evacuation of the dis-

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charges completely within the twenty-four hours; but under many conditions this does not occur.

As men grow older, or their lives become sedentary, peristalsis grows weaker, and feces may be retained for greater or less intervals along the entire course of the colon. Fecal impaction is not necessarily attended by obstruction or even by constipation. There may be one or two daily stools and yet fecal masses may lie for weeks or months in the bowel. During this time, as a matter of course, decomposition must go on.

This matter is simply reeking with micro-organisms of innumerable varieties. It is beyond the reach of disinfection by the bile, the gastric juice and the other intestinal secretions. It is beyond the sphere of those active operations which go on in the small intestine, and which are believed to neutralize the effect of micro-organisms and hinder the absorption of fecal toxins, at least during the period of health. The colon is not looked upon now as an absorbent organ, or as anything more than a receptacle for fecal collections; and it is even quite freely said of late that it is an unnecessary organ, a relic of previous stages of development, and might with impunity or even advantage be entirely removed.

Many persons who exist under the comfortable impression that their digestion is perfect, have this delusion rudely shaken by the appearance, after some accidental cathartic, of the débris of food which had been taken some months previously.

We ask if it is possible that such putrescible material can lie so long in the bowels, and no harm result? It is our belief that this is not the case; but that, instead of this, the manufacture of toxins through bacterial agencies is constantly going on, and the fluid portion of the feces is absorbed into the blood and the toxins with it; and that to this cause especially may be traced many disorders whose causation has been hitherto obscure.

We will first consider this matter as it occurs during the progress of fever. During any fever, specific or non-specific, we know that the secretion of the digestive fluids is largely decreased or even stopped altogether. The radiation of fluid from the surface of the body, however, is so great that the blood grows thick, inducing thirst, and also greatly favoring the absorption of

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liquid matter from the bowels into the blood. The natural safeguards of the body are therefore removed, and the absorption is increased; while under the influence of the increased heat and an abundant supply of putrescible material, micro-organisms multiply and become more active. Some of those which under ordinary conditions are harmless, become virulent; consequently there is an increase in the amount of the toxins and in their virulence, as well as of their absorption into the blood.

For these reasons we firmly believe that the action of toxins, absorbed from fecal matter in the alimentary canal, forms a very large proportion of the symptomatology of every case of fever, of any description whatsoever. We are not now speaking of such infections as cholera infantum, or typhoid fever, where the alimentary canal itself is believed to be infected with specific micro-organisms. We are speaking of fever in general, and our remarks apply as well to pneumonia, or to traumatic fever, the fever of tuberculosis, scarlet fever, measles or smallpox, as to that of typhoid fever. We have been in the habit of roughly estimating the sum of the symptomatology which is due to this cause, at about thirty to forty per cent of the total presented by a case; and we believe that, by completely emptying and disinfecting the alimentary canal, this proportion of the symptoms is subtracted from a case, reducing it in the vast majority of instances to the category of simple, benignant or even abortive forms.

This conclusion did not come to us as the result of laboratory experiment, but from clinical observations. We applied this simply as a working hypothesis, on which to apply our therapeutics; and the results of more than a quarter of a century of close observation have justified us. In fact, we have learned that when an apparent exception occurs, it is not a real exception, but shows that the conditions have not been fulfilled.

One clinical instance will illustrate this point: A physician informed us that he had employed the method of cleaning out and disinfecting the alimentary canal, in a case of typhoid fever, but that it had failed. The patient was in the fourth week of the fever, the temperature itself continuing at or above 104°.

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The patient was a girl about fourteen years old, of an illiterate emigrant family, and the house in which they lived was situated in the middle of a barnyard, which also contained the family well, into which the surface drainage from the well-populated barnyard flowed.

We felt tempted at first to say that this was the cause of the continuance of the fever, knowing full well that bad hygienic environment will render a simple case of fever malignant under ordinary circumstances. Nevertheless the girl had been brought up with these surroundings, and must have secured a certain degree of immunity against them; therefore we expressed our belief that while the ordinary means had been taken to empty the alimentary canal this had not been complete; and cited instances, not occurring during typhoid fever but in ordinary cases, nonfebrile, in which the use of cathartics and even of colonic flushing had yet failed to completely empty the bowels. We had been even compelled in some cases to use enemas of kerosene oil for this purpose, the oil having the property of permeating and softening the fecal masses better than any other agent with which we had experimented.

The physician went home, and the following week we received a letter from him, stating that on his return he had administered to his patient an enema of kerosene oil, and that the results had amply justified our views, the discharge it had occasioned being something phenomenal in size and offensiveness. The evacuation was followed at once by a drop in the fever to almost normal, and the patient rapidly became convalescent.

This was emphatically one of the exceptions which prove a rule.

During the past year several remarkable papers have appeared on the causation of diseases of the eye, the ear, the nose and throat, and even of mental affections, which have been traced to the influence of fecal toxemia. Years ago Sir Lauder Brunton said that the cause not only of locomotor ataxia but of all chronic affections of the spinal cord, would ultimately prove to be fecal toxemia. Acting on this suggestion, we have made in all such cases a routine procedure of completely and absolutely

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emptying the alimentary canal and disinfecting it, as a part of our regular treatment, not only at the beginning but during the course of the case, and we must say that we have never had as marked success in the treatment of the specific maladies under consideration as before we added this to our previous therapeutics.

But it is not necessarily the spinal cord alone which is affected in this manner. We start with the primary consideration that we have from this cause the circulation of certain toxic matters in the blood. These matters are not necessarily the same in all individuals, in fact, while we know perhaps a scanty half dozen of the toxins which are generated in the alimentary canal under these circumstances, it is probable there are many more which will yet be discovered, and that the effects of these vary. This prevents us picking out a certain specific set of symptoms and saying that these are due to auto-toxemia, and these alone.

Besides this, the impressibility of various parts of the human body varies. We are compelled to adopt the theory of points of lowest vital resistance. The human body is not uniformly capable of resisting noxious influences, but in every one of us there are certain points, or certain tissues or cells, which are more easily affected by evil influences than the rest of the body. We may have toxins circulating universally throughout the system; the effects will be manifested at the points of lowest vital resistance, in the shape of local disease.

A homely illustration of this is perhaps the "cold" which follows a Christmas or Thanksgiving dinner. We all know how frequently it is the case, that after the dinners characterizing such holidays we have a number of acute colds to treat. What do these mean? We know that every part of our body is infested with a waiting horde of micro-organisms, ready to start in and effect a lodgment whenever the vital resistance of that part is below par. Quite frequently it is the nasal mucous membrane. To the ordinary toxemia, always existing, an enormous increase is added, by the huge quantity of nitrogenous matter which is thrown into the digestive system at such a dinner. This is sufficient to depress the vital resistance of the nasal membrane below the point at which successful opposition may be made to the in-

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vasion. The ever-ready micro-organisms at once seize upon it, and the result is an acute infection, in other words, a "cold." A succession of such instances still further weakens the vital force of that part, and the cold gradually becomes chronic, with subacute attacks of frequent occurrence.

We see, therefore, that this hypothesis of fecal toxemia harmonizes with our studies in bacteriology, and with the older studies of cellular pathology. The system seems perfect in all respects. At any rate, as a working hypothesis it offers greater advantages for the application of our therapeutics than any other that has been devised. If we accept it, we will say that in all cases that come to us, with few if any exceptions, our first duty is to attend to the complete emptying and disinfecting of the alimentary canal, and henceforth we will see that this is kept up. By this means the toxins in the blood are reduced to those normally afforded by the vital operation of the cells of the body.

Our next duty is to see that the eliminant doors are kept widely open, so that these toxins may be passed out of the body at the normal rate; and with these two principles properly, intelligently and successfully applied, so much of our duties as physicians has been done that in a vast number of cases there is nothing left for us to do.

However, we are by no means ready to undervalue other methods. The regulation of the personal and domestic hygiene is of vital importance, and must never be neglected. The application of such remedies as are specific or valuable in each disease is no less important. We do not wish to be understood as discouraging in any way the search for and the application of the sera and other such means of specific treatment of disease. But we do protest against the profession going to extremes over such matters, neglecting everything else and submitting to the dictum that the serum, and nothing but the serum, comprises our whole duty as therapeutists.

We are not ready to lay down the results of the experience of the profession for the ages, to simply accept the latest new fad which is out, even before it has had time to be fairly tested and the limits of its applicability placed. We try to hold our minds always ready, always open for the acceptance of the new. We are ready to give it fair trial; but we cannot desert old and well-tried remedies and principles of practice, even in the name of progress.

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AN IMPROVISED HORSE-LITTER FOR TWO PATIENTS.

By CAPTAIN GIDEON McD. VAN POOLE,
MEDICAL CORPS UNITED STATES ARMY.

THE following is a description of an improvised horse-litter originated by Mora E. Smith, chief packmaster, Philippines Division.

The following articles are necessary to construct a litter for two men:

Two poles 5 ft. long.
Two poles 6 1/2 ft. long.
One pole 6 ft. long.
Two cross poles 4 ft. 4 in. long.
One manta 72 in. square.
Two hay pads.
Four sling or layer ropes.
One small rope.

Fig. 1. Improvised litter for two patients.

The canvas, hay pads and ropes are always carried by the pack train.

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To construct the litter: The two cross poles are placed on the ground about four feet six inches apart, parallel to each other. The two five feet poles are placed vertically over and about six inches each from the center of the cross poles, making the five feet poles twelve inches apart. They are lashed in this position by a sling or layer rope. The litter is then turned over and the six feet pole placed vertically over the middle of the cross poles and lashed. This pole acts merely as a division between the two patients. (See Fig. 1). The two six and one-half

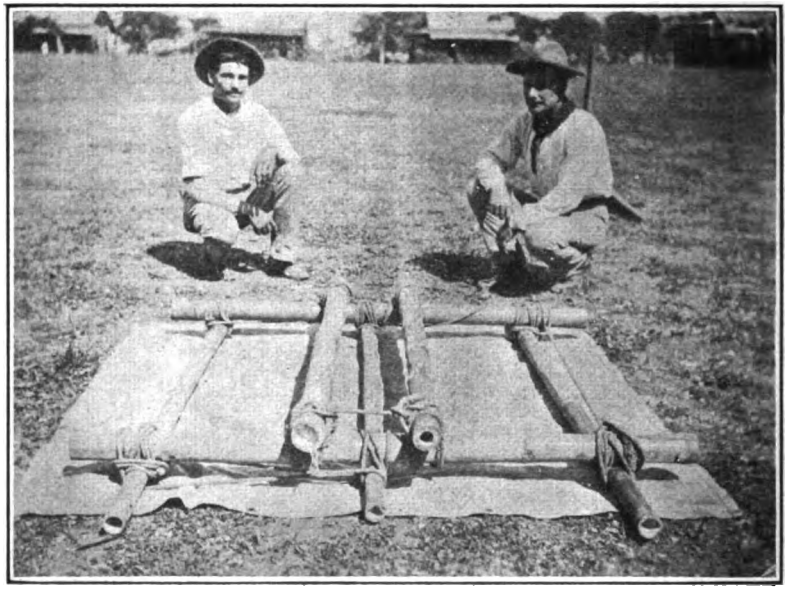

Fig. 2. Improvised horse litter for two patients showing litter turned over and placed upon the manta.

feet poles are placed vertically over and near the ends of the cross poles and lashed securely. The manta is next spread upon the ground and the litter turned over and placed upon it, as shown in Fig. 2. (In Fig. 2, the ends of the cross poles should be sawn off up near the lashing).

The small rope is passed through the eyelets on either side of the

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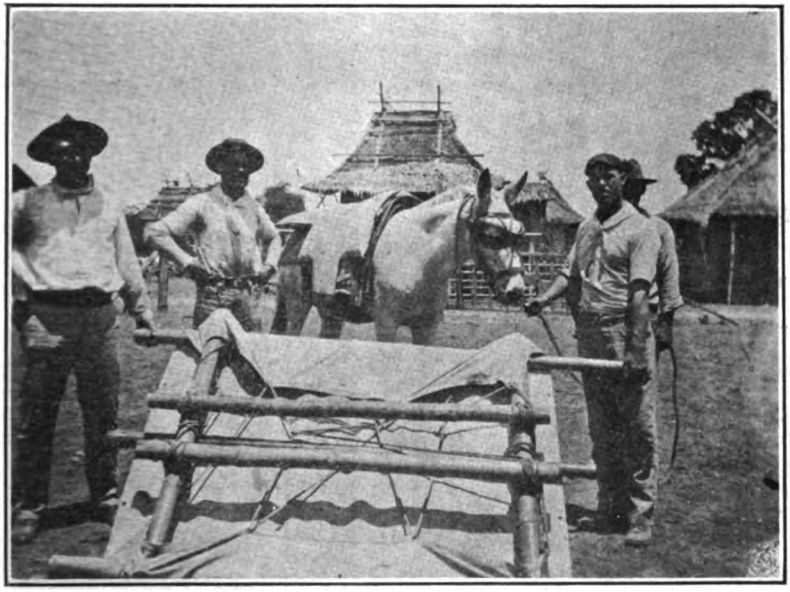

Fig. 3. Improvised horse litter for two patients, showing manner of lacing the manta.

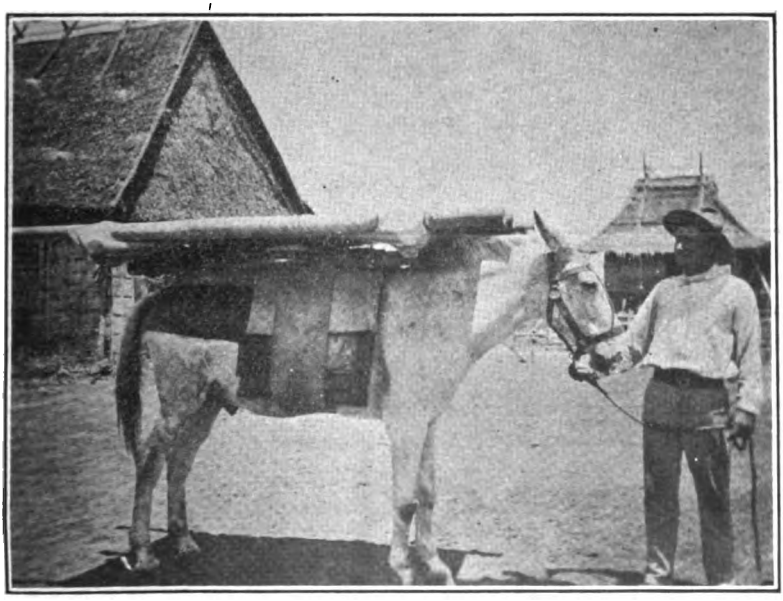

Fig. 4. Improvised horse litter for two patients, with cincha passed over and fastened.

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manta alternately, similar to lacing a shoe, and drawn very tight. (See Fig. 3). This completes the litter.

The common aparejo, used by the pack train, is placed upon a pack mule, and one of the hay pads used by the pack train is placed longitudinally over the aparejo extending back upon the mule's croup. Another is placed across the aparejo as shown in Fig. 3.

The litter is placed upon the mule and the cincha passed over the two five feet poles and fastened. (See Fig. 4). Two

Fig. 5. Improvised horse litter for two patients lashed to the aparejo.

layer or lash ropes, one on each side, are next applied, beginning at the front ends of the five feet poles, and passing beneath the corners of the flaps of the aparejo back and over the back ends of the five feet poles; again beneath the flaps of the aparejo and over the front ends, etc., until the litter is securely fastened. (See Fig. 5). These ropes should be adjusted on both sides at the same time. By them the litter can be made to tilt to either

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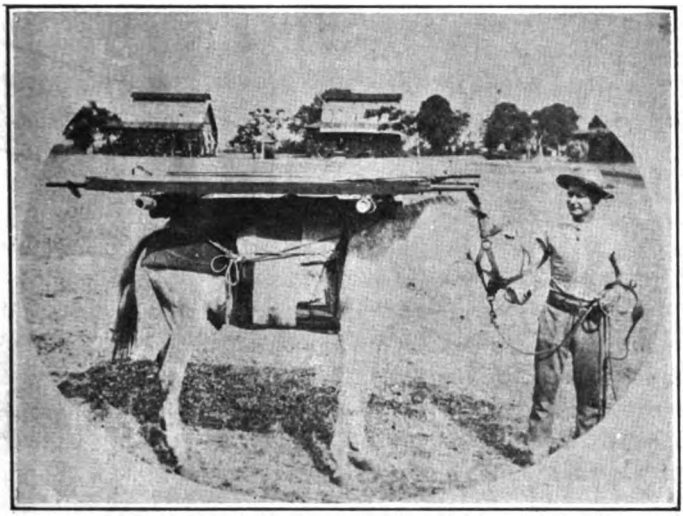

Fig. 6. Improvised horse litter for two patients constructed from two hand litters.

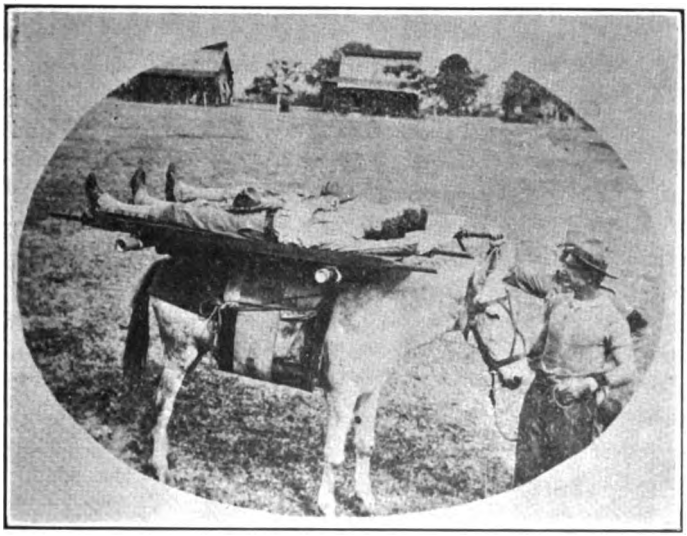

Fig. 7. Improvised horse litter for two patients constructed from two hand litters with patients in place.

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side to make it level, or either end can be raised or lowered, as circumstances may demand.

The above is a description of a litter for two men, and has proved practical when tried by the Hospital Corps at Camp McGrath, Batangas, P. I. A similar litter can be constructed for one man by making the cross poles shorter and leaving the division pole out. A litter of this kind was used in removing the wounded after the Mount Dajo fight in Mindinao, and was found to be practical and serviceable.

This litter is intended for use only when it is impossible or impracticable to procure the litters now furnished the Medical Department. If the regular litters can be had, then a similar litter can be prepared for two patients by simply running the cross poles through the stirrup of two litters and lashing the litters together aud to the cross poles, as shown in Figs. 6 and 7.

RIFLE BULLET, SHRAPNEL, AND SHELL WOUNDS IN THE RUSSO-JAPANESE WAR.

AMONG the statistics of special interest (M. I. Glagolieff, *The Lancet*) is the statement that 25 per cent of the wounds treated were made by shrapnel. This is a much larger percentage than was anticipated before the war and is a great increase over the 4 per cent of the Russo-Turkish war. As shrapnel wounds are usually more severe than small arm wounds, this notable increase in their proportion is of much practical importance as indicating at least the need of larger preparation for their proper treatment. Many more cases of suppuration occured among them; there were more penetrating wounds with lodgement of projectile; and a longer time was required for convalescence. Glagolieff agrees fully with the modern teaching of simply applying a first aid bandage in the field, reserving almost all operative work for a later time when surroundings are satisfactory.

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THE MILITARY MEDICAL SERVICE OF THE SOVEREIGN ORDER OF THE KNIGHTS OF MALTA IN THE AUSTRO-HUNGARIAN ARMY.

By STABSARZT Dr JOHANN STEINER,
IMPERIAL AND ROYAL WAR MINISTRY.

IN like manner as the Teutonic Order* The Sovereign Order of the Knights of Malta through its Grand Priory of Bohemia and Austria participates in the voluntary medical service of the Austro-Hungarian army.

The Sovereign Order of the Knights of Malta—originally called Order of The Hospital of St. John of Jerusalem—boasts of a splendid career of many centuries. Founded as a monastic order it was sanctioned by the Pope in 1113 and transformed into a clerical Order of Knights in 1119 which in a comparatively short time rose to considerable power. After the fall of Akka (1291) the Order resorted to Cyprus and later (1309) to Rhodes which 213 years later (1522) fell into the hands of the Mussulmans. The Emperor Charles V. now granted the knights the occupation of the Isle of Malta, where they remained till it was captured by Napoleon I, in 1798. Since 1827 the Order has had its seat in Rome where the Grand Master resides. It is divided into several Grand Priories and Knight-Associations and consists of the Grand Master, the Grand Priors, the Baliffs, the Commanders, the Knights of Justice, the Knights of Grace, the Honorary Knights and the Donates of the Order.

For the more efficient practice of its cardinal virtue "charity" the Grand Priory of Bohemia and Austria decided in the year 1875 to establish hospital trains. This beneficent instituion was organized by the famous philanthropist Jaromir Baron Mundy at that time Chief Surgeon General of the Maltese Order.

A revision of the regulations for the hospital trains of the Order, made in 1906, became necessary on account of the progress in medical science and railroad technics as well as in the organizatory changes of the sanitary service of the army.

*See The MILITARY SURGEON, Vol XX No. 2, page 131.

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According to these new regulations the Maltese Order is able to put into service six, and in case of emergency, twelve hospital trains which are destined to carry the seriously wounded and sick directly home from the place of war.

Each train consists of ten ambulances and six special wagons, i. e. for surgeons, kitchen, food, baggage, equipment of the sick and mess. The ambulance wagons are covered luggage-vans, already specially adapted in time of peace with double doors in the front walls, platforms on either side and three windows on the roof for the purpose of illumination and ventilation. The ten stretchers of each wagon being fixed on four iron frames have iron poles and wire nets as resting places for the mattresses.

The personnel of a train is composed of one knight as commander, two surgeons, one accountant, ten male nurses and two cooks. One train can transport one hundred sick or wounded soldiers, each wagon offering room for ten men. The whole personnel as well as the necessary medical and hospital material is to be supplied by the Maltese Order. The furnishing of wagons is by mutual consent regulated between the Order and the railroad authorities.

The Order possesses in time of peace a complete school train serving for the drill of the personnel.

The entire sanitary service of the Maltese Order is supervised by the Grand Prior—at present Prince Henry von und zu Liechtenstein who is assisted by a medical expert in the person of the Chief-Surgeon-General of the Order. As to their use the Maltese trains are perfectly under the charge of the military authorities so that the service is exclusively directed and controlled by the chief medical officers of the military staffs. The personnel of a Maltese train, though a civilian body, is subject to military discipline. They wear special uniforms with the Geneve brassard and an extra red brassard with the white Maltese cross.

The Maltese trains have most successfully performed active services in war, as is proven by their excellent work in 1878 during the occupation of Bosnia and in 1885 to 1886 in the Serbo-Bulgarian war. They are quite satisfactory in regard to organization and equipment; and there is no doubt, that they will form in case of a future war an inestimable constituent of the voluntary medical service of the Austro-Hungarian army.

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Contemporary Comment.

MANTEUFFEL'S CONDUCT OF THE MEDICAL DEPARTMENT UPON THE BATTLEFIELD AND IN THE FRONT.*

IN a communication to the German Surgical Congress, Professor von Manteuffel discusses the workings of the medical department on the battlefield and at the front in the Russo-Japanese War, which is reviewed by the *Archives de Médecine et de Pharmacie Militaires*, as follows:

The author demonstrates that the vast amount of material furnished by the Russo-Japanese War is far from being exactly focused. The authors who have written in regard to this war have viewed it from their own particular standpoints. A sufficiently trustworthy work, embracing it in its entirety, is still awaited.

The war surprised Russia in the midst of her preparations before her sanitary service was completely organized; this was still further retarded by the length of the lines of evacuation, the slowness of the returning trains, etc.

The formations which the sanitary service had stationed at the front were closely bound to the troops; a poor arrangement which was hastily remedied. The Red Cross formations, on the contrary, were distinguished for their mobility. A new type of field hospital and "flying lazaret" carried by horses, and so remarkable for its mobility, enabled the Red Cross to take a part in this war which it had never taken in any other. The personnel essential for it was from three to five surgeons, a certain number of medical students and in the neighborhood of thirty hospital attendants. The material (medicines, about a thousand dressings, instruments, thirty litters, kitchen utensils, tents) were distrib-

*Translated under the direction of the Military Information Division of the United States Army General Staff.

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nted on the horses. The field hospital of the Empress Marie, to which the author was attached, was the most complete of the kind. In addition it had at its command four two-wheeled Finnish wagons and a rolling kitchen. It could thus be used as a field hospital, a flying lazaret (by making use of available houses) and as a dressing station. It could be divided into sections. The personnel, with the exception of some of the attendants, was mounted.

At the outbreak of the war, the regulation transport columns were lacking. The want was sufficiently made up for by means of Finnish spring wagons, supplied with litters, and drawn by two mules.

Other wagons used were also of service in the second part of the campaign. The seriously wounded were transported on litters carried by mules or coolies. Wagons upset in the ploughed fields. Four-wheeled wagons could not be used upon the roads of Manchuria.

From a surgical standpoint, the Russo-Japanese war taught us nothing new that we had not learned from the Boer War, and the works of Bergmann, Bruns, Beyer, Beck, Pawlow. There are still, however, some points to be elucidated, in what relates, for example, to cranial trauma, to lesions of the bladder, and of the thigh. There is reason, moreover, to consider whether the rules laid down by von Bergmann, Berck, Büttner, Bruns and others, should not be modified, by reason of the new teachings resultant from a great war, and especially from the employment of modern arms, which are responsible for a vast number of wounded.

Without dwelling upon the position to be occupied by the dressing station, which should, upon level ground, be withdrawn to a distance of from three to four kilometers, upon the functions of the field hospital, the number of the wounded, varying according to the nature of the terrain, the projectiles employed, etc., attention may be invited to multiple wounds upon the same person. Six wounds were not unusual. At Shwangsho a Japanese with sixty-four bayonet wounds was taken to the dressing station and lived for twenty-four hours.

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As to what concerns the treatment of the wounded upon the advanced lines in the field hospital, the author sets forth the following considerations:

Those wounded in the *soft parts* by conical bullets (Japanese), should be, as in the past, considered as constituting a class of "noli me tangere." This rule was not always observed.

The question of *wounds of the cranium* has given rise to innumerable controversies. The German school, with Bergmann at its head, advocates the expectant method. The author, basing his theory upon the English practice during the Boer war, and upon his own, recognizes the two following categories:

(a). Wounds perpendicular to the surface should, as in the past, be treated expectantly. In the greater number of cases, they heal without any delirium or disorganization of the functions. The autopsy of cases which have succumbed to serious injuries to centers, to meningitis or inflammation of the brain show no fragments. The prognosis of wounds from shrapnel is of the worst character. If the projectile has remained in the wound the expectant method is to be employed until special symptoms develop or until a radio-photograph shall have demonstrated the possibility of reaching the projectile. By this means the author was able to extract a Japanese bullet from the occiput of a Russian soldier wounded at Sandepu. It was in the covering of the cerebellum, near the upper half of the skull, causing vertigo which prevented walking, and producing fever on the seventh day.

(b). Wounds at a tangent, which are of very frequent occurrence, require, on the contrary, to be taken in hand without loss of time. Treated in the beginning expectantly, they yielded very bad results; suppuration, fever, meningitis, inflammation of the brain. It was found necessary to have recourse to operation, though without much hope of success. Some cases, which were not infected, called for immediate surgical intervention because of the appearance of symptoms indicating the destruction of a part of the nervous system. In these cases fragments were found to have penetrated from four to six centimeters in a perpendicular direction to the tangent.

The prognosis of wounds of the cranium was of a graver

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character in winter, as, indeed, was that of other wounds. Bits of the heavy wadded skin head-coverings have been found deeply imbedded in the brain.

The principle of operating without loss of time is, however, wholly a theoretical one. Practically, it will very rarely be possible to trepan at a dressing station, but the operation must be deferred until the first etape at the rear is reached, that is, for a period of eight or ten hours at the outside. Each day's delay makes the prognosis more doubtful.

Wounds of the spine were as fatal in this war as in preceding ones. Operation is improper for bullet wounds; this is shown by some anatomical specimens of the author's, in which cicatrization was obtained, though the cord was penetrated and severed.

The course to be followed is entirely different if the projectile (such as a shrapnel) has lodged in the wound or has splintered the bone, causing compression of the cord. Some observations go to prove that, in these latter cases, good results may be obtained by operation, but, naturally, only at the zone of the rear.

These cases, should, moreover, be transferred when there is no *hemorrhage*. An examination should, therefore, be made at the first etape to ascertain its existence or non-existence. Where this condition is found, transportation by rail is not feasible. The wounded suffering from hemorrhage should, therefore, be kept within the zone of the etape. The author cites the case of a secondary hemorrhage at the end of a month, and the return of a paralytic condition which had disappeared at the time of the transportation of patients from Gunshulin to Harbin.

Among the *wounds of the lungs* those in which there is hemorrhage into the pleura from the lungs or heart are of great interest. Both forms of hemorrhage strongly contra-indicate evacuation of the wounded, who should be cared for on the spot. Tapping the effusion will only be undertaken later. Any other mode of procedure would expose to secondary hemorrhage, and to the penetration of germs from the lung into the pleura.

Of seven *wounded in the heart*, two recovered. The other five exhibited no dangerous symptoms for four or five days after

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the infliction of the wound. One should be content to establish the diagnosis, without operating or transferring to the rear.

There is still much room for discussion in regard to *abdominal wounds*. Since the Boer War, wounds of the *bladder* are considered as imperatively demanding operation. Bergmann classes operations of this nature as emergency operations, such as tracheotomy, amputation, ligature. This practice, a good one, perhaps, for wounds inflicted by shrapnel, is not proper for bullet wounds. The latter heal very readily, in spite of fistulas of all kinds. It is often necessary to enlarge fistulas, and to open abscesses. Wounds of the bladder should not be touched at the dressing station nor even at the first station of the etape.

In *wounds of the neck*, it has sometimes been necessary to have recourse to tracheotomy and ligature of the vessels. The healing of transverse wounds of the trachea and esophagus has at times been attended with aneurism; at times no such complication has occurred.

Wounds of the limbs were of special interest, particularly fractures and lesions of the vessels. The author declines to draw a conclusion in regard to fractures; he began by treating fractures of the thigh conservatively, then, because of the bad results obtained, resorted to resection of the fragments and even to amputation, without arriving at a satisfactory method of dealing with the question. One of his associates, a partisan of resection in the first instance, became, later on, a partisan of conservative treatment.

By the application of a plaster cast it was possible to convey the wounded as far as Harbin, or even beyond, without difficulty. Bergmann's rule in these cases, the application of plaster without splints, is still the one to be followed.

Suture after amputation is not admissable for the following reasons:

Where the suture has been resorted to, and the wound is, or should become infected (and such was the case in most instances) it will be necessary to loosen the sutures and then the flaps will usually prove to be too short. Suture has been the cause of death at times. The author was held responsible at St. Petersburg for conical stumps resulting from not having employed the suture. In his opinion sutures should be resolutely avoided (he

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would even be glad to see their use forbidden); but in case they are used the flaps should be made longer to allow for retraction.

For the present he will say nothing in regard to *injuries to the vessels*, but will invite attention to the numerous cases of phlegmon which he was called upon to open in the field hospital, that had become apparent from five to eight hours subsequent to the infliction of the wound, in the case of men who had lain a long time without assistance, or in that of those who had come in of themselves for treatment.

He advocates the use of rubber gloves, which he has always worn while operating(upon more than 1,000 wounded at Shaho). He would be glad to see the sanitary service in their field organization supplied with these gloves, which save much time(a quarter of an hour for each operation) and insure perfect safety.

This recent "epidemic of trauma," the author says, was the bloodiest that humanity has had to record since the battle of the Catalonian plains. It brought into singular relief the grave duties incumbent upon the medical service in our day, principally in the matter of the evacuation of the wounded, upon a scale unknown up to the present time. The newspapers protested against the inhuman suffering imposed upon those undergoing evacuation, but I cannot refrain from recalling the fact that the object of war is the infliction, not the cure, of wounds; that to the commander of the army a wounded man has no further interest because of his wound; and that to us, of the medical profession, ought to be reserved the obligation of caring for the wounded at the front.

Two questions remain to be settled; one concerns the organization of the medical service, the other the Geneva Convention.

The first is this: How to transfer the wounded from the field of battle without paralysing the efficiency of an entire regiment.

The second question admits of the establishment of a rule. The gravely wounded should be left upon the field to fall into the hands of the enemy. Those suffering from wounds of the abdomen or heart cannot be moved. Moreover, whether a wounded man be a prisoner of war or not, is a matter of no consequence. If, then, we decide to abandon him we shall be very close to having reached a solution of the first problem: the necessity of conducting military operations without paralysing action by the necessity of supplying bearers.

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Editorial Expression.

CHANGE OF DATE OF THE ATLANTA MEETING.

AT its recent quarterly ballot the Executive Council unanimously determined to place the date of the Seventeenth Annual Meeting of the Association of Military Surgeons of the United States one week later than had originally been contemplated. *The days for the meeting are now October 13, 14, 15, and 16.* The prospects for a very successful meeting are most promising. Portugal, Ecuador and Turkey will be represented by delegates for the first time. From England we are to have Colonel .W G. Macpherson and from Mexico we have the promise of Colonel Alejandro Ross, who were so popular at the Buffalo meeting. The beautiful city of Atlanta will be at its best at the time of the meeting and promises to extend to us a bountiful exhibition of good old fashioned southern hospitality.

THE MILITARY ATTITUDE AND THE SOLDIER'S HEALTH.

IN an interesting paper in the *Journal of the Royal Army Medical Corps*, Dr. M. S. Pembrey, Civilian Member of the British Army Medical Advisory Board, remarks that during the first month of service they require plenty of food and light exercise. Unusual movements in gymnastic postures are not the most suitable, for they produce an amount of fatigue and an expenditure of nervous and muscular energy which are disproportionate to the work done. The co-ordinated and economical working of the muscles in any form of exercise can only be learnt by frequent practice; in walking, the recruit has had such practice, but before he enters the gymnasium he has probably not once assumed the postures involved in some of the exercises.

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Marching without a load is, for these reasons, a suitable exercise for the young recruit.

Many of the exercises found in systems of physical training are based upon the idea that all the muscles must be uniformly developed, and with this end in view postures which are never used in ordinary life are constantly assumed. The uniform development of all the muscles of the body is unnecessary and uneconomical. Muscles hypertrophied by unusual or acrobatic exercises will become smaller unless the exercise is repeated frequently. The maintenance of all the muscles in a highly developed condition, necessitates daily exercise of each muscle and the expenditure of much energy. The normal condition is division of labour and differentiation. Marching and digging are exercises in which infantry soldiers require progressive training. It is essential that a soldier should be able to march carrying a load and to dig entrenchments without undue fatigue; both of these forms of work can produce over-strain of the heart if the man has not been trained by progressive and frequent practice. Digging has not received the attention which it deserves, and it has even been decried as an exercise on the ground that it makes men round-shouldered. Here again there is a danger that efficiency may be sacrificed to the ideal of a military figure. The strength and endurance of the English navvy are proverbial, and he does not possess the square shoulders desired by the drill-instructor.

It has been stated in official manuals that the "strictly military position assists greatly in the free and full action of the heart and lungs, and the consequent development of the whole body." If this position has such a beneficial effect, it is surprising that it has been especially reserved for the private soldier, and has never been adopted by sailors or athletes. The constrained military attitude with distended and rigid chest, hinders the action of the heart by restricting the free movement of the chest, whereby the passage of the blood from one side of the heart to the other is aided. It is, moreover, wasteful of nervous and muscular energy. The position of "attention" is an abnormal one which can be defended only as a discipline.

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News of the Services.

THE following officers of the several services were elected to membership in the Association of Military Surgeons upon the last ballot of the Executive Council:

Major Paul Allen Adams, N.G. California.
Colonel Albert S. Bower, N.G. Utah.
Lieutenant Edward Albert Cunningham, Massachusetts V.M.
Assistant Surgeon Charles M. Fauntleroy, P.H.&M.H.S.
Acting Assistant Surgeon John Nivison Force, P.H.&M.H.S.
Acting Assistant Surgeon Herbert Gunn, P.H.&M.H.S.
Acting Assistant Surgeon Howard H. Hopkins, P.H.&M.H.S.
Acting Assistant Surgeon Joseph Louis Howard, P.H.&M.H.S.
Captain Elmer Edgar Keiser, N.G. Pennsylvania.
Captain George Winlock Lee, N.G. Indiana.
Colonel Frank Salter Nicholson, Nebraska N.G.
Assistant Surgeon George M. Olson, U.S.Navy.
Passed Assistant Surgeon Harry Shaw, U.S.Navy.
Acting Assistant Surgeon Gustavus Adolphus Weyer, P.H.&M.H.S.
Captain Clarence H. Willis, N.G. Georgia.
Acting Assistant Surgeon Chester Howard Woolsey, P.H.&M.H.S.

Assistant Surgeon A. H. Allen, U.S.N., ordered from Camp Columbia, Cuba, to Sancti Spiritus, Cuba.

Assistant Surgeon D. G. Allen, U.S.N., ordered to the Naval Medical School.

M. Ambiel, Physician in Chief of the First Class of the Navy and member of the Superior Health Council has been designated by the French Minister of the Marine to represent the French navy at the Atlanta meeting of the Association of Military Surgeons of the United States.

Lieutenant Colonel and Mrs. Aaron Hirst Appel, U.S.A., announce the marriage of their daughter Miss Marjorie Appel to Dr. George Lewis Wickes, U.S.N., at Cheyenne, Wyo., on Wednesday, July 8.

Dr. J. K. Ashburn, U.S.A., ordered to accompany troops from Fort Assinniboine to American Lake, Wash.

Captain Percy M. Ashburn, U.S.A., ordered before the Washington Promotion Board.

Major Bailey K. Ashford, U.S.A., promoted from Captain April 23, 1908.

Captain Howard H. Bailey, U.S.A., ordered to Fort Wayne for temporary duty and return.

Major David Baker, U.S.A., promoted from Captain April 23, 1908.

Assistant Surgeon J. A. Biello, U.S.N., ordered from the *Solace* to the Pacific Torpedo Fleet.

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Captain Frank C. Baker, U.S.A., ordered from Fort Oglethorpe to Chickamauga Park, Ga.

Passed Assistant Surgeon T. D. Berry, P.H.&M.H.S., placed on "waiting orders" from June 1, 1908.

Captain Ernest C. Bingham, U.S.A., ordered from the San Francisco General Hospital to Fort Porter.

Passed Assistant Surgeon L. W. Bishop, U.S.N., ordered from the Indianapolis Naval Recruiting Station to the Denver Naval Recruiting Station.

Surgeon E. M. Blackwell, U.S.N., commissioned from March 4, 1908, and ordered to the Naval Academy.

Passed Assistant Surgeon F. M. Bogan, U.S.N., ordered from the Minneapolis Naval Recruiting Station to the *Wisconsin*.

Major William C. Borden, U.S.A., ordered before the Washington Promotion Board.

Captain John R. Bosley, U.S.A., ordered to duty with the 1st Infantry, en route to and at camp at American Lake, Wash.

Passed Assistant Surgeon H. L. Brown, U.S.N., ordered from the Cavite Naval Station to the *Cleveland*.

Captain Henry L. Brown, U.S.A., ordered before the Washington Promotion Board.

Captain Orvil G. Brown, U.S.A., ordered before the Washington Promotion Board.

Acting Assistant Surgeon Silas E. Brown, P.H.&M.H.S., granted twenty-one days leave.

Lieutenant Earl H. Bruns, U.S.A., ordered before the Washington Promotion Board.

Dr. G. F. Campbell, U.S.A., ordered from the Philippines to the United States.

Dr. D. P. Card, U.S.A., granted one month's leave.

Lieutenant Colonel Edward C. Carter, U.S.A., ordered from Fort Leavenworth to Fort Sheridan upon expiration of leave.

Dr. C. A. Cattermole, U.S.A., ordered from San Francisco to Manhattan, Nev., for annulment of contract.

Major Weston P. Chamberlain, U.S.A., promoted from Captain April 23, 1908.

Acting Assistant Surgeon E. S. Clark, P.H.&M.H.S., granted ten days leave.

Assistant Surgeon G. F. Clark, U.S.N., ordered to the *Lancaster*.

Captain John A. Clark, U.S.A., ordered from Fort Oglethorpe and temporary duty at Madison Barracks to Fort Liscum.

Passed Assistant Surgeon Taliaferro Clark, P.H.&M.H.S., ordered to Ellis Island for special temporary duty and return to Philadelphia, Pa.

Major Jere B. Clayton, U.S.A., promoted from Captain April 23, 1908.

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Assistant Surgeon G. L. Collins, P.H.&M.H.S., ordered before the Washington Promotion Board for examination.

Lieutenant Clarence L. Cole, U.S.A., ordered before the Washington Promotion Board.

Assistant Surgeon F. X. Coltes, U.S.N., ordered from the *Connecticut* to report to the Commander, Third Squadron, Pacific Fleet.

Lieutenant C. D. Cowles, Jr., U.S.A., ordered to accompany fifty men of Co. C, Hospital Corps, from the Washington General Hospital to Chickamauga Park, Ga.

Passed Assistant Surgeon R. H. Creel, P.H.&M.H.S., granted two months leave.

Major William D. Crosby, U.S.A., ordered before the Washington Promotion Board.

Captain Robert M. Culler, U.S.A., ordered before the Washington Promotion Board.

Captain Frederick A. Dale, U.S.A., ordered to accompany troops from Fort Lincoln to American Lake, Wash.

Captain Matthew A. DeLaney, U.S.A., ordered to Philadelphia, Pa., until further orders, to examine applicants for the Medical Reserve Corps.

Dr. J. C. Doughterty, U.S.A., arrived at San Francisco on leave from the Philippines.

Acting Assistant Surgeon A. D. Drew, P.H.&M.H.S., granted one month's leave without pay.

Major Douglas F. Duval, U.S.A., promoted from Captain April 23, 1908.

Assistant Surgeon General J. M. Eager, P.H.&M.H.S., granted one month's leave.

Dr. A. H. Eber, U.S.A., arrived in San Francisco on leave from the Philippines.

Assistant Surgeon H. G. Ebert, P.H.&M.H.S., ordered before the San Francisco Promotion Board for Examination.

Major Guy L. Edie, U.S.A., ordered before the Washington Promotion Board.

Major Charles B. Ewing, U.S.A., ordered before the Washington Promotion Board.

Assistant Surgeon E. O. J. Eytinge, U.S.N., ordered from the *Concord* to the *Illinois*, thence to the *Ranger*.

Passed Assistant Surgeon C. N. Fiske, U.S.N., ordered to the Boston Naval Recruiting Station and to additional duty in attendance upon officers of the Navy and Marine Corps residing in Boston.

Assistant Surgeon J. Flint, U.S.N., ordered from the *Wilmington* to the *Connecticut*.

Captain Joseph H. Ford, U.S.A., ordered to accompany troops from Fort William Henry Harrison to American Lake, Wash.

Passed Assistant Surgeon G. F. Freeman, U.S.N., ordered from the Boston Navy Yard to the *Montana*.

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Captain Paul L. Freeman, U.S.A. ordered before the Washington Promotion Board.

Acting Assistant Surgeon H. M. Friedman, P.H.&M.H.S., granted twenty-eight days leave.

Major Charles M. Gandy, U.S.A., ordered before the Washington Promotion Board.

Passed Assistant Surgeon C. H. Gardner, P.H.&M.H.S., ordered from San Francisco to command the Service at Wilmington, N. C.

Surgeon J. M. Gassaway, P.H.&M.H.S., ordered to the Reedy Island Quarantine Station for special temporary duty and return to Philadelphia, Penna.

Assistant Surgeon General H. D. Geddings, P.H.&M.H.S., ordered to Philadelphia, Pa., and the Reedy Island Quarantine Station for special temporary duty and return to Washington, D. C.

Captain Harry L. Gilchrist, U.S.A., ordered before the Washington Promotion Board.

Passed Assistant Surgeon Joseph Goldberger, P.H.&M.H.S., ordered to Baltimore, Md., for special temporary duty and return to the Hygienic Laboratory; granted one month's leave.

Colonel William C. Gorgas, U.S.A., elected President of the American Medical Association at the recent meeting in Chicago, and appointed by the President one of the delegates to the Pan-American Scientific Congress to be held in Santiago, Chili, in December of this year.

Dr. L. K. Graves, U.S.A., ordered from the Philippines to Whipple Barracks.

Captain Henry S. Greenleaf, U.S.A.. ordered before the Washington Promotion Board.

Captain Jay W. Grissinger, U.S.A., ordered from Fort Ethan Allen to Fort Egbert; granted an extension of leave to July 24.

Captain Robert B. Grubbs, U.S.A., ordered from Fort McIntosh to Leon Springs, Tex.

Surgeon G. M. Guiteras, P.H.&M.H.S., appointed delegate to the Fifth Pan-American Medical Congress at Guatemala.

Dr. A. M. Guittard, U.S.A., ordered from the Philippines to the United States.

Lieutenant Louis H. Hanson, U.S.A., ordered from Fort Liscum to Seattle to wait orders.

Medical Director G. E. H. Harmon, U.S.N., ordered from the Naval Academy to temporary duty in command of the Naval Medical School Hospital.

Major Henry S. T. Harris, U.S.A., granted one month's extension of leave, ordered to Port Leavenworth.

Dr. W. L. Hart, U.S.A., ordered to temporary duty at Washington Barracks in addition to his duties at the Washington General Hospital.

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Assistant Surgeon L. Hart; P.H.&M.H.S., ordered from Stapleton, N. Y., to temporary duty at the Hygenic Laboratory.

Major Frederick M. Hartsock, U.S.A., promoted from Captain April 23, 1908.

Brigadier General Albert Hartsuff, U.S.A., retired, well known as Chief Surgeon of the forces at Chickamauga in the early part of the Spanish-American War, died June 22, at Detroit, Mich.

Captain Louis T. Hess, U.S.A., ordered before the Washington Promotion Board.

Captain James D. Heysinger, U.S.A., ordered from Key West Barracks to Chickamauga Park, Ga., and ordered before the Washington Promotion Board.

Assistant Surgeon M. E. Higgins, U.S.N., ordered from the *Illinois* to report to the Commander, Third Squadron, Pacific Fleet.

Passed Assistant Surgeon W. C. Hobdy, P. H. & M. H. S., relieved from duty on the San Francisco Examining Board.

Passed Assistant Surgeon W. S. Hoen, U.S.N., ordered from the *California* to continue treatment at the Mare Island Naval Hospital.

Passed Assistant Surgeon John M. Holt, P. H. & M. H. S., granted one month's leave.

Lieutenant E. G. Huber, U.S.A., ordered to accompany fifty men of Co. C. Hospital Corps, from the Washington General Hospital to Chickamauga Park, Ga.

Dr. A. R. Hull, U.S.A., granted one month's leave.

Captain Harry G. Humphreys, U.S.A., ordered before the Washington Promotion Board.

Major Philip W. Huntington, U.S.A., granted three months leave from Fort Rosecrans.

Dr. C. W. Johnson, U.S.A., ordered from Fort Des Moines to field duty in South Dakota.

Dr. G. B. Jones, U.S.A., ordered from San Francisco to Fort George Wright.

Major Jefferson R. Kean, U.S.A., ordered before the Washinton Promotion Board.

Acting Assistant Surgeon W. M. Kerr, U.S.N., ordered to the New York Naval Hospital, thence to the Norfolk Naval Hospital.

Major Charles F. Kieffer, U.S.A., retired from active service June 24, 1908.

Passed Assistant Surgeon W. W. King, P.H.&M.H.S., detailed as recorder of the San Francisco Examining Board.

Major Thomas J. Kirkpatrick, U.S.A., ordered from Fort Moultrie to Chickamauga Park, Ga.

Dr. F. T. Koyle, U.S.A., ordered from the Philippines to the United States.

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Assistant Surgeon E. Krulish, P.H.&M.H.S., granted twenty days leave.

Lieutenant J. S. Lambie, Jr., U.S.A., ordered to accompany fifty men of Co. C, Hospital Corps, from the Washington General Hospital to Chickamauga Park, Ga.

Captain Theodore Lamson, U.S.A., granted two months leave with permission to apply for one month's extension.

Assistant Surgeon M. E. Lando, U.S.N., ordered to the Minneapolis Naval Recruiting Station.

Lieutenant Colonel Louis A. LaGarde, U.S.A., returned to the Chief Surgeon's Office, Denver, Colo., from leave; assigned to duty as Attending Surgeon at Denver, Colo., in addition to duties as Chief Surgeon, Department of Colorado.

Dr. F. V. Langenderfer, U.S.A., ordered from the Philippines to the United States.

Passed Assistant Surgeon C. H. Lavinder, P.H.&.M.H.S., ordered from Wilmington, N. C., to Stapleton, N. Y.

Assistant Surgeon A. E. Lee, U.S.N., ordered from the Canacao Naval Hospital to the *Concord.*

Major William F. Lewis, U.S.A., ordered to accompany troops from Fort Sill to Leon Springs, Tex.

Captain Robert C. Loving, U.S.A., ordered before the Washington Promotion Board.

Dr. T. S. Lowe, U.S.A., ordered from the Philippines to Vancouver Barracks for duty in the Department of the Columbia.

Captain Theodore C. Lyster, U.S.A., ordered before the Washington Promotion Board.

Major Walter D. McCaw, U.S.A., ordered before the Washington Promotion Board.

Medical Director W. A. McClurg, U.S.N., retired on thirty years service, September, 1, 1908.

Passed Assistant Surgeon W. N. McDonnell, U.S.A., ordered from the *Severn* to Camp Perry, Ohio.

Passed Assistant Surgeon John McMullen, P.H.&M.H.S., granted one month and ten days leave.

Lieutenant Colonel W. G. Macpherson, C.M.G., R.A.M.C., named as delegate from the British Army to the Atlanta meeting of the Association.

Major Clarence J. Manly, U.S.A., promoted from Captain April 23, 1908, granted leave in the United States from July 12, to September 15, 1908.

Acting Assistant Surgeon W. L. Mann, Jr., U.S.N., appointed from July 1, 1908.

Assistant Surgeon H. M. Manning, P.H.&M.H.S., ordered before the

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Washington Promotion Board, and to the Columbia River Quarantine Station for special temporary duty.

Captain Charles E. Marrow, U.S.A., ordered before the Washington Promotion Board.

Major Edgar A. Mearns, U.S.A., ordered before the Washington Promotion Board.

Captain Edgar W. Miller, U.S.A., ordered before the Washington Promotion Board.

Captain Samuel J. Morris, U.S.A., granted two months extension of leave about August 15.

Major Edward L. Munson, U.S.A., ordered from Fort Sheridan to duty as instructor in the care of troops at the Fort Leavenworth Army Staff College.

Dr. George Newlove, U.S.A., arrived at San Francisco on leave from the Philippines.

Assistant Surgeon E. H. H. Old, U.S.N., ordered from the Cavite Naval Hospital to Washington for examination for promotion and then to wait orders.

Captain Leartus J. Owen, U.S.A., ordered before the Washington Promotion Board.

Major Henry Page, U S.A., promoted from Captain April 23, 1908.

Dr. W. E. Parkman, U.S.A., ordered to accompany troops from Fort Assinniboine to American Lake, Wash.

Passed Assistant Surgeon J. H. Payne, Jr., U.S.N., ordered from the Cleveland Naval Recruiting Station to the Boston Navy Yard and to additional duty in connection with the fitting out the *Salem*.

Assistant Surgeon General W. J. Pettus, P.H.&M.H.S, ordered to Philadelphia, Pa., for special temporary duty and return to Washington, D. C.

Major John L. Phillips, U.S.A., ordered before the Washington Promotion Board.

Captain Robert H. Pierson, U.S.A., ordered before the Washington Promotion Board.

Dr. E. H. Porter, U.S.A., ordered from Fort Worden to Fort Casey for temporary duty.

Passed Assistant Surgeon J. A. Randall, U.S.N., ordered from the *Denver* to the *Rainbow*.

Assistant Surgeon R. C. Randall, U.S.N., ordered from the Second Torpedo Flotilla to the *Solace*.

Major Thomas U. Raymond, U.S.A., ordered to accompany the 21st Infantry from Fort Logan to camp near Fort D. A. Russell.

Captain Charles R. Reynolds, U.S.A., ordered to duty as Commanding Officer of Co. C, Hospital Corps, at the Washington Barracks Gen-

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eral Hospital, and to accompany fifty men of Co. C. Hospital Corps, from the Washington General Hospital to Chickamauga Park, Ga.

Acting Assistant Surgeon Henry C. Richter, P.H.&M.H.S., appointed July 7, 1908, and ordered to Calexico, Cal.

Assistant Surgeon Norman Roberts, P.H.&M.H.S., ordered before the Washington Promotion Board.

Passed Assistant Surgeon S. S. Rodman, U.S.N., ordered home from the *Rainbow*.

Acting Assistant Surgeon J. O. Rush, P.H.&M.H.S., granted fourteen days leave.

Acting Assistant Surgeon M. V. Safford, P.H.&M.H.S., ordered to Ellis Island for special temporary duty and return to Boston, Mass.

Passed Assistant Surgeon J. W. Schereschewsky, P.H.&M.H.S., ordered to Ellis Island for special temporary duty and return to Baltimore Md.

Captain Ferdinand Schmitter, U.S.A., ordered from Fort Egbert to Seattle to wait orders.

Major Edward R. Schreiner, U.S.A., promoted from Captain April 23, 1908.

Major Ira A. Shimer, U.S.A., promoted from Captain April 23, 1908.

Captain Joseph F. Siler, U.S.A., ordered before the Washington Promotion Board.

Acting Assistant Surgeon H. Slade, P.H.&M.H.S., granted one month's leave.

Assistant Surgeon C. W. Smith, U.S.N., ordered to the Portsmouth Naval Hospital and to additional duty at the Naval Prison at that Yard.

Assistant Surgeon F. W. Smith, U.S.N., ordered from the *Wisconsin* to report to the Commander, Third Squadron, Pacific Fleet.

Captain Lloyd L. Smith, U.S.A., ordered before the Washington Promotion Board.

Captain Cary A. Snoddy, U.S.A., ordered before the Washington Promotion Board.

Lieutenant H. McC. Snyder, U.S.A., ordered from the San Francisco General Hospital to Fort Rosecrans for temporary duty.

Surgeon J. J. Snyder, U.S.N., commissioned from March 4, 1908, and ordered from the *New Hampshire* to the *Franklin*.

Assistant Surgeon D. A. Spear, U.S.N., convicted by general court martial of forgery and sentenced to dismissal from the service and two years imprisonment, the latter portion of which, upon recommendation of the court was migitated to one year.

Passed Assistant Surgeon P. R. Stalnacker, U.S.N., commissioned from May 3, 1908.

Medical Inspector J. M. Steele, U.S.N., retired after thirty years service.

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Major William Stephenson, U.S.A., ordered before the Washington Promotion Board.

Acting Assistant Surgeon J. W. Stevenson, P.H.&M.H.S., granted twenty days leave and two months leave without pay.

Acting Assistant Surgeon C. S. Stoddard, P.H.&M.H.S.,granted one month's leave.

Acting Assistant Surgeon H. C. Story, P.H.&M.H.S., granted one month's leave.

Passed Assistant Surgeon J. L. Taylor, U.S.N., commissioned from December 17, 1907, and ordered to the New Fort Lyon Naval Hospital.

Captain William H. Tefft, U.S.A., ordered before the Washington Promotion Board.

Acting Assistant Surgeon W. Townsend, P.H.&M.H.S., granted one month's leave.

Assistant Surgeon G. B. Trible, U.S.N., ordered from the Mare Island Naval Hospital to the *Relief*.

Captain Willard F. Truby, U.S.A., ordered before the Washington Promotion Board.

Surgeon J. F. Urie, U.S.N., ordered from the *Pennsylvania* before the Mare Island Naval Retiring Board, and then to the Naval Hospital at that place for treatment.

Captain James W. Van Dusen, U.S.A., granted one month's leave about October 1.

Captain William E. Vose, U.S.A., ordered from Fort Des Moines to Fort Mackenzie.

Dr. F. M. Wall, U.S.A., ordered from Fort Oglethorpe to Chickamauga Park, Ga.

Passed Assistant Surgeon W. K. Ward, P.H.&M.H.S., ordered from Ellis Island to Manila.

Captain Walter D. Webb, U.S.A., ordered before the Washington Promotion Board.

Major Henry A. Webber, U.S.A., promoted from Captain April 23, 1908.

Captain Frank W. Weed, U.S.A., ordered before the Washington Promotion Board.

Dr. H. R. Weston, U.S.A., ordered from Fort Ethan Allen to the Philippines.

Captain Arthur M. Whaley, U.S.A., ordered from Fort Sam Houston to Leon Springs, Tex.

Surgeon W. M. Wheeler, U.S.N., ordered home from the Cavite Naval Station.

Assistant Surgeon E. C. White, U.S.N., relieved from further duty in Cuba, and ordered to the Cleveland Naval Recruiting Station.

Dr. J. S. White, U.S.A., arrived in San Francisco on leave from the Philippines.

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Passed Assistant Surgeon M. J. White, P.H.&M.H.S., granted fifteen days leave.

Dr. G. L. Wickes, U.S.N., married Miss Marjorie Appel, daughter of Lieutenant Colonel and Mrs. Aaron Hirst Appel, at Cheyenne, Wyoming, Wednesday, July 8.

Captain William A. Wickline, U.S.A., ordered to accompany one-half of Co. B, Hospital Corps, from the San Francisco General Hospital to Leon Springs, Texas.

Surgeon L. L. Williams, P.H.&M.H.S. granted one month's leave.

Assistant Surgeon C. K. Winn, U.S.N., ordered from the *Villalobos* to the *Missouri*.

Captain Robert N. Winn, U.S.A., ordered before the Washington Promotion Board.

Captain Edwin P. Wolfe, U.S.A., ordered before the Washington Promotion Board.

Lieutenant Colonel Frederick J. J. Wood, N.G.N.Y., desires to state that the information in the June MILITARY SURGEON that he personally reported in favor of the Hospital Corps of one of the Regiments in his command is incorrect and that he made no such statement.

Captain Frank T. Woodbury, U.S.A., granted two months leave from the Philippines.

Major Marlborough C. Wyeth, U.S.A., ordered before the Washington Promotion Board.

Dr. H. W. Yemans, U.S.A., ordered, upon expiration of leave, to Fort Wayne.

Captain Stanley G. Zinke, U.S.A., ordered to accompany troops from Fort Leavenworth to Fort D. A. Russell, and before the Washington Promotion Board.

A MILITARY HOT SPRINGS HOSPITAL IN THE PHILIPPINES.—The military hospital at Camp Eldridge, Laguna, has been officially designated as a sanitarium in the Philippines for the special treatment of diseases appropriate to the form of hydro-therapeutics furnished by thermal springs.

THE NEW DRILL REGULATIONS FOR THE ARMY HOSPITAL CORPS.—The new Drill Regulations, edition of 1908, have been issued. The book is materially larger than previous editions and is noteworthy for the substitution of half tone engravings for the outline illustrations formerly used. A more detailed review of the book will appear in the next number of THE MILITARY SURGEON.

ARMY COOKING SCHOOLS AT MANEUVER CAMPS.—An interesting and valuable feature of the summer maneuver camps this year is the presence of the army cooking schools. Although not under the direct command of the Medical Department they form a most important feature of military hygiene and will prove of much advantage and interest to medical officers and the Hospital Corps.

THE SIXTEENTH INTERNATIONAL MEDICAL CONGRESS.—This Congress, which is to meet at Budapest, August 26th to September 4th, 1909, is already well organized and requests representation by delegates from the

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Association of Military Surgeons of the United States. Any member desiring to attend the congress may receive credentials in official form from the Secretary of the Association upon application.

PROBATIONARY COURSE AT THE NAVAL MEDICAL SCHOOL.—The Medical Department of the Navy has adopted the plan followed for so many years by the Army Medical Department of appointing candidates for the Medical Corps Acting Assistant Surgeons and ordering them to a probationary course at the Naval Medical School, at the successful termination of which they are to be graded according to the standing of their final examinations and duly commissioned.

ARMY MEDICAL SCHOOL GRADUATES.—The first officers to enter the reorganized Army Medical Corps graduated last month from the Army Medical School and have received commissions in the Corps in the following order: Mahlon Ashford, Washington, D. C., John R. Barber, Sheridan, Oreg., Calvin D. Cowles, Jr., at large, Edward G. Huber, Martinsburg, Mo., John S. Lambie, Jr., Blairsville, Pa., Garfield L. McKinney, South Canaan, Pa., Hiram A. Phillips, Monticello, Ky., Howard McC. Snyder, Cheyenne, Wyo., Arthur N. Tasker, Washington, D. C., Joseph A. Worthington, Harrison, Ark.

SUCCESSFUL CANDIDATES FOR THE ARMY MEDICAL CORPS.—At the last examination for admission to the Army Medical Corps seventy-two candidates presented themselves and of this number but nine were successful, viz., Dr. Rozier Claggett Bayley, of Virginia; Contract Surgeon Daniel Parker Card, of New York; Dr. William Richard Dear, of District of Columbia; Contract Surgeon Leon Connallis Garcia, of Missouri; Dr. Eben Clayton Hill, of Maryland; Contract Surgeon James Carre Magee, of Pennsylvania; Dr. Armin Mueller, of Wisconsin; Contract Surgeon Sylvester F. O'Day, of New York; Contract Surgeon Arnold Dwight Tuttle, of New York. Physical defect was the chief element in producing so large a number of rejections, although the mental examination also found its victims.

EXAMINATION FOR ADMISSION TO THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.—An examination for appointment as Assistant Surgeon in the Public Health and Marine Hospital Service will be held at the Bureau opposite the house wing of the capitol in Washington on September 14, 1908. The Service is continually becoming more desirable and pending legislation will make it still more so. Those desiring admission should address the Surgeon General of the Public Health and Marine Hospital Service, 3 B St., S. E., Washington, D. C., requesting permission to appear for examination.

MATERIALIZATION OF THE ARMY MEDICAL RESERVE CORPS.—Commissions were issued last month to 160 active officers of the Army Medical Reserve Corps, embracing former contract surgeons who are eligible under the new medical law to appointment as first lieutenants of the reserve. The list embraces some who served in the Civil War, many who saw active service in the Spanish War and in the Philippines during the insurrection, both in the volunteers and as auxiliaries of the Regular service. No small difficulty has been encountered in determining the relative rank of the various candidates for appointment, as their service has been so varied and extended in some cases. The law is that relative rank must be settled by length of service in the Regular Army or since April 19, 1861, in the volunteer forces, and when periods of service are equal, rank is determined by

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the standing in competitive examinations, by rank in service when appointed, and by lot. Practically all these methods have come into play in settling the numerous knotty questions that have appeared in the appointments in question. Dr. S. T. Weirick, for many years a contract surgeon has been commissioned as a first lieutenant of this corps. Dr. Weirick is one of the oldest medical officers in the country, having had service in the ranks during the Civil War and for nearly two score years in the Medical Department.

Many applications are being received from civilian physicians for appointment to the corps under the terms of the circular published in the last MILITARY SURGEON and twelve commissions have been issued. It is hoped to obtain leading members of the profession in the principal cities, that the new corps may have the benefit of their names and influence. Boards will be detailed to meet in various places as medical officers are available for the duty, with a view to conducting the examination upon which appointments to the reserve corps are based. The first of these boards has been ordered to meet in Washington, and is composed of Major Charles Lynch, who will have charge of the reserve corps affairs in the surgeon general's office, and Captains W. B. Webb and J. B. Huggins of the medical corps. In the meantime, consideration is being given to the designs of an insignia to be worn on the collars of the uniform of the commissioned personnel of this branch of the Army medical department. It has been suggested that in addition to the letters "U.S." there be a combination of emblem and letters made up of the caduceus and the letters "R. C." It is a question whether in the manufacture of such a combined design sufficient distinctness may be gained.

ARMY MEDICAL PREPARATIONS FOR WAR.—The assemblying of field equipment by the American Army Medical Department against the time it may be needed for the emergency of war was begun in a small way in 1901. At that time there was a small Field Medical Supply Depot in the cellar of the Army Medical Museum. After the present Chief of the Medical Corps came in more room was acquired in a building on 20th St., and last year authority was fortunately obtained to rent for a Field Medical Supply Depot the Globe Building on Pennsylvania Ave.; this building is admirably adapted for use as a supply depot and is in charge of Major Carl R. Darnall. A bill appropriating $200,000.00 for this purpose was approved by the President on May 11, 1908, and bids have already been received for something like $192,000.00 worth of field supplies. The contracts for these expenditures were completed early in July and the expenditure of the remaining amount will be provided for during the summer. The supplies take the form of a certain number of completely assembled regimental, field, stationary and base hospitals so that when an emergency comes again the medical department can ship these hospitals to camp and be immediately prepared to take care of the sick.

The Army Medical Department will by this measure be relieved of much embarrassment due to the failure of Congress hitherto to provide for a field equipment. The special apparatus and supplies for field medical equipment are not in the general market and cannot be improvised. To assemble them takes months. In view of the celerity of modern military movements a prudent government must provide them beforehand. Some progress had been made in this direction, as already noted but the stock was constantly depleted by issues to the militia, and it was still far from adequate. Moreover a large reserve of medical supplies in store at San Francisco was destroyed in the burning of that city. The estimated value of the stores destroyed was $357,391.62 and the appropriation to replace them was only $100,000.00. Those who have made a study of the situation have no hesitation in describing as one of the vital needs of the medical department in the future as stated in the report of the Dodge Commission, a year's supply for an army of at least four times the actual strength of all such medicines, hospital furniture and stores as are not materially damaged by keeping, to be held constantly on hand in the medical supply depots.

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Current Literature.

HISTORY OF THE FRENCH ARMY MEDICAL CORPS.*

NO history of the French Army Medical Corps has appeared since that of Gama and Bégin issued in 1840, so that it may almost be said that French military medicine was without a historian, its real life being a creature of later years. Unlike so many works of similar pretensions, this book is not the outcrop of a recent war, but a philosophical survey of the subject extending throughout the history of France.

After an introduction covering the early general history of medical aid in war, the authors enter into a consideration of the monarchy and the military hospitals during the period from 1708 to 1792, thence passing into the swift campaigns of the Grand Army, followed by the Restoration, the Franco-German campaigns, the colonial operations, and closing with a consideration of the progress of the service under the act of 1882 by which the medical department was endowed with autonomy.

The uniforms of the service are touched upon with a special vividness, and their fashion brought out particularly clearly by a series of color plates from aquarelles by M. A.-L. La Gault of the Sabretache.

INTERNATIONAL CLINICS.†

THE International Clinics for 1908 open up with a handsome volume, maintaining the high character and comprehensive scope which we have learned to expect from this publication.

*Le Corps de Sante Militaire en France; son Evolution, ses Campaignes, 1708–1882, par M. le Docteur BRICE et M. le Captaine BOTTET. 8vo; pp. 462, Paris, Berger-Levrault et Cie, 1908. Paper, 25 fr.

†International Clinics. *Eighteenth Series.* Vol. I. Edited by W. T. LONGCOPE, M.D. 8 vo; pp. 309, with 75 illustrations. Philadelphia and London, J. B. Lippincott Co., 1908.

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SURGICAL ANATOMY.*

IN this excellent work the author has made medical practice to take a distinct step in advance, for the work is a material improvement upon all treatises upon the subject hitherto issued. The clinical aspect of the subjects considered is in every instance the prime motive of the discussion of the several parts. With this feature in the foreground the other elements of the work fall into position in due proportion and proper perspective. Both clinically and anatomically the book is complete and up to date and will find for itself a broad field in the needs of the profession.

YEAR BOOKS OF GENERAL MEDICINE AND GENERAL SURGERY. †

THE first two volumes of the Practical Medicine Series for 1908 are devoted to the subjects of General Medicine and General Surgery and continue under the editorship, respectively, of Frank Billings, M.D. and J. H. Salisbury, M.D., for the former, and John B. Murphy, M.D., for the latter, the whole series continuing under the chief editorship of Gustavus P. Head, M.D. We have already expressed our high opinion of this series and are glad to note that the series for 1908 promises to sustain the reputation already acquired.

ADENOMYOMA OF THE UTERUS.‡

THIS work is a fine example of the modern exhaustive monograph which has been so highly and so frequently discussed with approval in the pages of THE MILITARY SURGEON. It originated in a study of a case of diffuse uterine adenomyoma which indeed is in this work for the first time especially worked out. The book is well arranged, finely illustrated and sumptuously printed.

*A Textbook of Surgical Anatomy.—By WILLIAM FRANCIS CAMPBELL, M.D. 8 vo; pp. 675, with 319 original illustrations. Philadelphia and London, W. B. Saunders Co., 1908. Cloth $5.00, net.

†Practical Medicine Series.—Edited by GUSTAVUS P. HEAD, M.D. Vol. I. *General Medicine.* Edited by FRANK BILLINGS, M.D. and J. H. SALISBURY, M.D. 12 mo; pp. 408. Cloth $1.50. Vol. II. *General Surgery.* Edited by JOHN B. MURPHY, M.D. 12 mo; pp. 614. Chicago, The Year Book Publishers, 1908. Cloth $2.00.

‡Adenomyoma of the Uterus.—By THOMAS S. CULLIN, M.D. Imp. 8 vo; pp. 270, with 68 illustrations. Philadelphia and London, W. B. Saunders Co., 1908. Cloth $5.00, net.

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THE MILITARY SURGEON

Original Memoirs.

WHAT IS THE MOST EFFECTIVE ORGANIZATION OF THE AMERICAN NATIONAL RED CROSS FOR WAR, AND WHAT SHOULD BE ITS RELATIONS TO THE MEDICAL DEPARTMENTS OF THE ARMY AND NAVY?*

BY MAJOR HENRY I. RAYMOND,
MEDICAL CORPS UNITED STATES ARMY.

PRELIMINARY REMARKS.

THE fact that all human knowledge is derived from experience, either from one's own or from that of others is undeniable. "Experientia optimus magister est" is a familiar phrase of our academic days and tho it may sound scholastic, the fact remains that "history is philosophy teaching by example." Those facts derived from past experiences and on which is founded all human knowledge, constitute, when classified and arranged in a complete series, the surest foundation for an abiding superstructure. Is it not then the part of wisdom in seeking a solution of "the most effective organization of the American National Red

*The essay which received first honorable mention in the Enno Sander Prize Essay Competition for 1907.

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Cross for War" to study philosophy teaching by example upon the world's battlefields, and especially in that greatest and yet most recent war in the annals of history—the Russo-Japanese—and to adapt to the genius of the American people the exploitation of those principles which underlie the *causes* that are the prime essentials to success, and in comparison with which causes, mere results are at most but necessary sequences?

Scarcely fifty years ago an American admiral opened up Japan to the civilization of the world. Today Nippon has given to the world the most perfect exemplification of an organized Red Cross for war—a spectacle seen from the time of Henri Dunant upon the battlefield of Solferino through a glass darkly, but now seen face to face.

This greatest contribution to humanity in war was an offspring of paganism: not Christianity but the teaching of Confucius that what ye would that others should not do unto you do ye not to them was the motive power. The underlying principle was reciprocity. It was however a living burning faith—one that opened the pocketbook—and today the poor and pagan Nippon is contributing three million yen annually in *preparation* toward the prevention and amelioration of the ravages of a possible war. Her budget toward practicable philanthropy vies with that for machine guns, just as her growth in ethical culture and altruism keeps pace with her advancment in the destructive arts of warfare. The membership of her Red Cross today numbers over one million out of a population of forty-five million and the great bulk of her Red Cross fund is contributed in driblets by the people themselves, who pay their debt to their country by providing for the prevention of camp diseases, and for the care of their sick and wounded soldiery. It may injure our pride to take example from a pagan nation, but pride goeth before a fall and tends to paresis of that receptivity of mind which characterizes all honest men.

The practical utility of the Japanese Red Cross for War in war is due in part to its universal popularity—it is the only thing in Japan without caste—its loyal supporters range from royalty to peasantry, and this very popularity insures an ample treasury.

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When a man sets his heart upon anything—especially a worthy object—he is usually willing to pay the price. Are we not too prone to cut our coat according to the cloth? The Red Cross of Japan is no paper organization: its great popularity gives it membership and funds—two essential elements of success. International arbitration propaganda, while seeking the restriction or the reduction of armaments and the cessation of warfare, should (however paradoxical it may sound) encourage, in an inverse ratio, a liberality in preparation for the care of the sick and wounded in a possible future conflict, "opposing the arms of charity to the arms of violence" and making war against the ravages of war itself. This provision *at least* should be arranged well nigh on a war footing, irrespective of peace armaments and not left a poor pensioner upon the bounties of an hour. The humanitarian phase of the subject should appeal to all—alike to those possessed of the most conservative military spirit and to those most bitter in their denunciations of the righteousness or necessity of war.

When the dogs of war are let slip, then the American people are most lavish with their money and open wide the National treasury, but "then" is too late to enter. To those who will not accept the dictum that the price of peace, *at least*, is preparedness for war, we make this appeal that the price of an efficient medical and hospital corps service in war is its full anticipation and complete preparedness in time of peace. It is said of Napoleon that he won his victories before his battles were fought—so perfect was his strategy so vast his generalizations: So with foresight and preparedness it has come to pass that the Red Cross of Japan has become the greatest organizer of victory on the battlefield against our invisible foe that, since the dawn of history, with but two exceptions, the Franco-Prussian and the Russo-Japanese wars, has engulfed in its enormous maw fourfold more victims than the actual causalties of battle alone.

The foregoing may bring to the student's attention certain essential elements of organization that can not themselves be formulated between lines and crossbars but which bear to the completed whole the relation of foundation to superstructure. The organization of the American National Red Cross for War must

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therefore be federal in its governmental attribute; of universal popularity in its breadth of comprehensiveness; business-like and resourceful in its fiscal relations under a federal accountant and must have for her motto "semper paratus" to insure the winning of her greatest victories before the first tocsin is sounded.

The enemy in warfare is twofold, the visible and the invisible foes. Until the Russo-Japanese war, with one exception, the mortality record was one death from wounds to four deaths from disease, but Japan has transposed the numerals—four deaths now from wounds to one death from disease—or eight hundred per cent better than the average of history against an unseen foe. "God of battles! was ever a battle like this in the world before?"

The Spanish-American war, waged in the name of altruism, gave us a ratio of one killed by bullets to more than ten who succumbed to preventable diseases. The American arms were victorious but another such victory would undo us quite. The Japanese rightly conceived that in the oncoming war with Russia, according to the average of history, out of one hundred thousand deaths in war eighty thousand would be attributable to preventable causes and only twenty thousand to the legitimate and reasonable mortality of armed interference. She was willing to offer up this inevitable sacrifice as an immolation upon the country's altar, but she must needs eliminate the slaughter of the eighty thousand by an unseen foe. This she did, giving her commanders against this latter foe equal rank and opportunity and autonomy in their respective spheres of action with those commanding against the visible enemy who unavoidably destroyed but twenty thousand.

Never is money so well invested as for prevention of disease, nothing is more costly than disease; and two hundred and fifty thousand dollars spent in preparation of the medical personnel and equipment for war would save the country ten million dollars in treatment and pensions. The lesson is one of preparedness for the inevitable. This is the price of victory over our unseen foe and if we are willing to pay the price then let us add (lest we forget!) that the American National Red Cross never will be prepared for war unless she is always *getting ready.*

In every way the most perfect humanitarian organization in

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the world is the Japanese Red Cross service. She leads the world in practical philanthropy. Her staff and appliances available for war consist of:

320 Doctors,
160 Apothecaries,
1,920 Nurses,
770 Sick attendants (male),
457 Probationary nurses,
2 Hospital ships complete and two under construction,
398 Cases of medical appliances,
1,774 Cases of surgical instruments,
496 Stretchers,
52,438 Articles of patients' clothing and bedding,
27,199 Articles of nurses' clothing and bedding,
2,060 Miscellaneous articles,

1,035,000 names inscribed under the white banner of her Red Cross and 3,000,000 yen contributed annually.

May we not suspect ourselves of some folly when our ratio of one to ten or more in the Spanish-American war shows three hundred per cent *worse* than the average of history while Japan went eight hundred per cent *better* than the historical average? In which of the four great principles—centralization, preparation, impartiality, and solidarity—embraced in the solemn compact between the National Red Cross societies, as set forth by that incomparable Red Cross American pioneer—Clara Barton—did we fall short of in our observance? Did centralization on which depends unity of direction, fail us? Did our preparation insure calmness and efficiency in the hour of trial and forestall hasty and disconcerted action in the bewilderment of excitement? We need not enquire regarding impartiality which extends a helping hand alike to friend and foe nor regarding solidarity which permits strangers to the dispute to tender succor and assistance to the sick and wounded of the belligerent forces without affecting any principle of non-interference. This principle of solidarity alone is sufficient warrant for a highly organized American National Red Cross—tho our isolated geographical position renders improbable our own participation in a conflict of arms for the rest of the century. Such an aim would be truly humane and purely Christian with no taint of pagan reciprocity.

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Every constitution or world organization is a product of evolution—none ever sprung full panoplied into existence as did the fabled Juno who sprung full-armed from the breast of Jove. The discovery of a scientific fact is never a fortuitous circumstance but rather is the capping stone of a long series of scientific collateral findings precedent to the final crowning glory of the work in hand. So in sociology, no one can sit down and, disregarding the history of constructive events in social evolution, map out *in originality* a plan of organization that will contain the Promethean spark of assured vitality. The military strategist studies the campaigns of the greater military commanders from Epaminondas to Von Moltke and deduces from their experiences the art of occupying specific points by specific forces in specific times. The strategist in mimic warfare upon the chess board studies the processes of the greater captains of the chessic art from Philidor to Morphy and deduces from their experiences the art of occupying specific points with specific chess forces in specific times. The lamp of experience furnishes a safe and steady light in the forecast of the future. In this spirit, then, let us approach the task before us and enquire into the history of the greatest Red Cross organization—with no parallel precedent since the dawn of creation—the National Red Cross of Japan.

PART I.

HISTORY OF THE JAPANESE RED CROSS FOR WAR.

The most complete and lucid exposition of the origin, growth, development and purposes of this organization is set forth in the French by Ariga upon whom the essayist will freely draw in this narration, vouching thus for its historical accuracy. In 1900 in the farthest East, a development of the work of the Red Cross was being accomplished for which there had been, up to that date, no precedent in any other part of the world. Whence comes then the wonderful development of this society? Unquestionably from its special and individual character. The principle of the Geneva Convention of 1864 was humanity but in a broad sense humanity is opposed to nationality. Not humanity, but "Dette a la patrie et secours aux soldats" was the actuating principle that gave to the Japanese Red Cross its special and individual

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character. On this principle of reciprocity the society developed with a rapidity so prodigious that for one of the countries the most distant from Christian civilization there had never before been seen a parallel precedent.

The founders of the society called Hakuaisha—meaning Benevolence Unlimited—memorialized the throne in these memorable words—in free translation: "Our gratitude toward the country is immense and in order to pay a feeble part of what devolves upon us we have formed a society called Hakuaisha of which the end is to send its members upon the field of battle to care, under orders of the surgeons of the Army and Navy, for the wounded soldiers of the Imperial army. As to the wounded insurgents (civil war of Kagoshima, 1877), their number is much greater than that of the wounded of the Imperial Army and moreover their medical service is defective. Their wounded are abandoned in the fields and upon the mountains and remain for a long time exposed to the sun and rain. They are, it is true, rebels against the authority of the Emperor and their fault is unpardonable but they are nevertheless subjects of the Empire and children of the Emperor and Empress. We cannot be so cruel as to abandon them to their ill fortune and we pray that we be also empowered to care for them. In according us this authorization, the magnanimity of our august sovereign will not only be manifested thru and thru but this magnanimity will also be the most certain means of recalling the insurgents to their duty." His Imperial Highness, Prince Komatsu, then accepted the title of honorary president. An appeal was made to the public for funds. Gifts in money and kind flowed in like a swollen river. His Imperial Majesty came himself and gave 1,000 yen as a personal subscription, not as a functionary. Agents were sent to the theater of war to gather up the wounded and to scatter lavish care for all, without distinction between federal troops and insurgents.

Thus was established the Society of the Red Cross of Japan. Let us now determine how the character of this Red Cross Society has manifested itself in its development, its organization, its relations with the Imperial Household and with the military authorities in its different labors in the course of the war of

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1894-5, and how its character is manifested again today in its preparation for a possible war in the future. The origin of the society makes memorable the year 1867 when Count Sano, later on its president, was sent by the government of the Shogun to the universal exposition at Paris to study the organization and methods of the Red Cross societies of the world powers. Again in 1873, as Minister to the Court of Vienna, he devoted himself to a study of the progress made since the Franco-Prussian war of 1870-1. The salutary effects of these missions upon the civil war of Kagoshima (1877) already have been recounted. Adhesion of Japan to the Geneva Convention followed in due course and then it was in order to undertake the reorganization of the society. The new organization was put into operation in May, 1887. She entered then upon a period of growth of her resources. The society estimated carefully the cost of the *getting ready*—how much cloth would be needful for the service coat—and looked about for the money. Sano sought new means of exciting a healthful rivalry among the departments. He caused to be calculated upon the basis of the inhabitants of each department the percentage of adherents; printed tables of statistics were sent to the chiefs of local sections and committees. The impartiality of this system and the question of amour propre of each department—each wishing not to make the worst showing or to be behind—naturally developed a favorable result.

The effects of the Chino-Japanese war upon the development of the society were immediate and far reaching. The war demonstrated to the nation how precious and priceless had been the service rendered by the society. This war brought Japan face to face with the world and augmented her resources, while it increased her dangers. Before the war she had but one hospital in which to instruct her infirmary nurses, and tho she had an abundance of material and also a sum of money especially set apart for the expense of preparing in advance her material and personnel, she did not yet have an organizaaion sufficiently definitive for service in time of war. The great number of experiences gained in the course of the war and the rapid augmentation of resources and of members during and after the war however permitted the

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society to commence preparations on a grander scale and on a better determined plan. The military authority which then reorganized the different services of the army, profited by the reform of the field sanitary service to study the mode of utilization of the personnel and materiel of the Red Cross Society.

On his return from the sixth International Conference of the Red Cross, Dr. Koike was named Director of the Medical Service of the Army, and *under his direction* were completed the rules for the Service of Succor of the Red Cross Society in time of war. The plans of these preparations having been made in concert with the military authorities, it remained only for the society to put them into execution. As war may come at any time, surely within thirty or forty years, for the great fact of all history is war, but as no one can foretell the hour, the society resolved to put an end to the incertitude and fixed upon the year 1902—the twenty-fifth anniversary of Kagoshima—as the year in which should be brought to fruition the new fruit of the tree of knowledge whose root was experience. The relation of the activity of the society to its acknowledged obligation to the sovereign, resulted in the high patronage which His Imperial Majesty extended over the society. This relation demanded the realization of the three following points:

1. To have the honor of the high patronage of Their Imperial Majesties:

2. To see that the nomination of the President and Vice President of the Society meets the approval of the Emperor and Empress:

3. To place the Society under the control, and subject to the mandates of His Imperial Majesty.

The principal means which the society employed to set forth to the people this relation between the Throne and the Red Cross were as follows:

1. Publication and advertisment.
2. Utilization of governors of departments.
3. The insignia of the society.
4. General assemblies of the local sections.
5. Popularization by the magic lantern.

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The publications and advertisements consisted of manifestoes and a monthly magazine called "The Red Cross of Japan." In these publications were set forth the best methods of paying this debt to the country in the succor of her soldiers. The second manifesto explained how to aid wounded soldiers on the battle-field—all in language understood by the common people and placed in their hands.

Another mode of propagandism was manifested at the meeting of the governors of departments. The Honorary president, Komatsu in '80 and '83, invited them to Tokio, and at these annual reunions begged them to make every effort to recruit the society and to encourage donations. At one of these reunions Marquis Ito and the Ministers of War and of the Navy were present. Marquis Ito explained to them the intention of the Crown in placing the society under its high patronage, spoke of the flourishing condition of the Red Cross societies of Europe and showed how useful and necessary it had proven to be to obtain the assistance and co-operation of the entire people. The governors responded heartily, and from that day dates the identification of the administrative organs of the state with those of the local Red Cross societies.

The Red Cross insignia were employed as a very effective means of propagandism. The Insignia were distinguished from the medals of other societies by their great value and the distinctive honor conferred by them. They differed in three essentials:

1. They were created by special sanction of the Emperor on June 2, 1888, while those of the other societies had never received special sanction or ratification.

2. They were bestowed on members with solemn ceremony; the Honorary President gave the names to the Minister of the Imperial Palace, who conveyed them to His Majesty the Emperor. It follows that the insignia are in this respect accorded by the Emperor himself, after the manner of according certain other decorations and medals of the empire.

3. These insignia could be worn by the members in their public reunions with equal right to that accorded other decorations

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or medals of state. By an ordinance of 1895, the wearing of the insignia of the Red Cross in public was confirmed, and, on the other hand, the wearing of the insignia of private societies in public was forbidden. Besides the insignia of membership there was a special decoration of merit which was created to recompense those who should render conspicuous service to the society. This decoration was likewise accorded by the Emperor himself.

General assemblies of the local sections of each department were held annually and were presided over by the Governor; an address by the Honorary President was read or, as often happened, was delivered by himself in person, and this was followed by exercises or maneuvers by the Sanitary Corps. This annual event or fete, being the great social event of the department, was productive of new adherents and enriched the treasury beyond the expenses of the occasion.

Another method of propagandism was to assemble the inhabitants of the villages in a certain locality for the purpose of explaining to them the origin of the Red Cross and the necessity of its existence, by means of pictures projected on a screen by the magic lantern. The idea of popularizing this society by this means was certainly novel. The Baron Ishiguro, medical inspector general, came himself with his lantern to the General Assembly at Tokio, and this report having reached the ears of Her Imperial Majesty, she ordered the Baron to give a representation of the magic lantern views before herself and the Crown Prince. This patronage insured its popularity. Among the views presented were the portraits of Florence Nightingale and Henri Dunant; the national and Red Cross flags; wounded soldiers abandoned on the field of battle: His Majesty visiting the wounded soldiers in the hospital at Osaka, and the Empress donating banddages made by her own hands.

We are now prepared to study more specifically the organization of the Red Cross of Japan. The members of the Society are of three classes:

1. Honorary.
2. Special.
3. Titular.

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The permanent council has power to confer upon persons of dignity the title of honorary member. As a matter of fact this title is conferred only upon members of the Imperial Household.

Those who have rendered notable service to the society in war or in peace and without compensation, may be made special members and, as such, are exempt from payment of annual dues.

The titular members are those who pay annual dues of three to twelve yen.

The Control is placed under the Minister of the Imperial Palace and the Minister of War and Navy, on whom it devolves to carry out the desires of His Imperial Majesty who is their High Protector; and they are also charged with the organization of the sanitary service of the army. All the principal rules of the society are subject to the authorization of these Ministers. The successive Surgeons General of the army have decided all questions that came up under the respective Ministers of War. These directors of the medical service of the army were such men as Baron Hashimota, Baron Ishiguro, and Dr. Ishishaka who have always been warm partisans of the society and have personally contributed to its means. Without these personages the society never could have reached the stage of development in which we find it today.

In order to render the control of the director of the sanitary service of the army more facile and efficient, there were actually attached to the Director of the Army Medical Service an officer of the general staff and an army surgeon who were representatives of the society in the capacity of military advisors. Thanks to these councilors, the society was held in close relation with the military authorities. On questions relating to preparedness for war, the heart of the army and the heart of the society beat as one.

The most remarkable point in the constitution of the Japanese Red Cross is the powerful centralization of its many corps. This results from the history of its growth and is quite in contrast with what existed in the development of the European societies. In most of the countries of Europe the societies were

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first founded in the different villages or provinces with the president, administrative board and finance committee,—all local. Necessity for these kindred but disconnected units to unite with each other soon manifested itself to the end that a more efficient service might be rendered to the Army. Unity is the soul of organic strength. A central committee was also founded whose function it was to manage the affairs of all. In Japan, on the contrary, there has existed from the first but one single society which was established at Tokio. The power to authorize even the creation of a local society in a department lies with this central committee also and, as the establishment of local sections only conduces to the rapid dispersion of capital, no authorization to establish them is given them unless the departments are posessed of an annual revenue of 3,000 yen or of a membership of 1,000 souls. Until one or other of these requirements is fulfilled, the departmental committee cannot exercise any administrative power; it can exercise itself only in facilitating communications of the central committee with the departments. These things being so, a strict centralization of power is assured in the establishment of the regulations concerning administration, finances and the service of succor in time of war.

The power of the society always rests centralized at Tokio and is composed of a Permanent Council and Executive Committee.

The Permanent Council is composed of thirty members elected by the General Assembly, consisting of the titular members resident at Tokio; its members hold office for three years and are eligible for re-election. It is this council that deliberates and decides upon the important affairs of the society. It convenes whenever an important subject-matter is presented that falls under the control of the central committee, and its members are required to assemble at least once every three months. Questions are decided by a majority vote; in case of a tie the president casts the deciding vote. The council cannot deliberate unless fifteen members are present. If a quorum be not present it is re-convened at the end of a fortnight and may then deliberate and act irrespective of the presence of a quorum.

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The Executive Committee is composed of a president, two vice-presidents and seven directors or administrators, who are elected by the permanent council and taken from among its members. The honorary president makes known to the Emperor the names of the members elected. The president and the vice-presidents cannot however enter upon the functions of office, until the election has been confirmed by Their Imperial Majesties. The president has the chief direction of the affairs of the society; he represents it; he makes the regulations and provides for the necessary details for carrying its statutes into execution and presides over the General Assembly and the Permanent Council. The vice-president assists the president and replaces him when he cannot be present. The administrators regulate the affairs of the society under direction of the president.

The services of the members of the Permanent Council and of the Executive Committee are gratuitous. The president convokes the General Assembly once a year or in extraordinary session whenever he deems it necessary. At these conventions reports of committees are read and questions of high import are brought under discussion. At the General Assembly of 1898 more than 30,000 members were present, so that it was possible only for the Empress herself to make an address, and the reports on administration, finance and new propositions that required the sanction of the assembly were presented in printed form. It is evident then that the real directing power resides in the President and in the Permanent Council. In time of war the Permanent Council is transformed into a Council Extraordinary in order to expedite the transaction of its affairs, and the president can, as a matter of utility, augment provisionally the number of members of the Council.

The local sections of the society are presided over by sub-chiefs under the personel supervision of the governor of the respective departments.

It was through the perseverance of Prince Komatsu and Count Ito that the Governors finally took active control of the local sections, and as a result they became familiar with the local conditions and were able to exercise a salutary influence and give

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prestige to the local membership. The Ministers of War and Navy being in control of the Society of the Red Cross were invested with authority to give orders to the governors of the departments in a double capacity, as officials of the states and as chiefs of sections. It was customary in Japan for all governors of departments to meet once a year in Tokio to discuss questions of state. The Society of the Red Cross profits by this custom, as it provides for a reassembling of its chiefs of sections and thus gives them an opportunity to receive instructions and to air their opinions. We do not know of any such convenient system existing in any other country.

Centralization has a special importance with respect to finances. The great inconvenience of having so many little independent local societies is that many with small capital will be found to be of little utility either in time of peace or in time of war. Inthe Red Cross of Japan throughout the empire there is but one strong box. All monies and gifts sent to the society come theoretically to the central committee and all expenditures are made through it. The resources of the society come from the Imperial grants, the dues of the members, voluntary donations, sundry receipts derived from its work and interest on its invested capital. The ordinary management of the fund is confided to the executive committee who must render an account every three months to the Permanent Council. The local sections are divided into two categories on the question of finances. The departments in the cities of Kioto and Osaka and the five large maritime ports, Yokohama, Kobe, Niigata, Nagasaki and Hakodate and the eight other departments in which are located the headquarters of the army divisions are authorized to withhold one-third of their local revenue; the other local sections are authorized to reserve only one-fourth of their revenue; all the rest of the revenue of each section is sent to the central seat at Tokio. The one-third or one-fourth part of the revenue conserved by the local sections can not be expended by them on their own initiative, but the greater part of the resources must be employed for the preparation of the personnel and material for time of war after the schedule or scale has been established by the central committee.

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The founding of the hospital "Hakuaisha" of the Red Cross Society, the only one of its kind in the far east, was due to Baron Hashimoto, the medical inspector general. The public ceremony of inauguration took place with great pomp and eclat. The Emperor and Empress, all the Princes and Princesses of the realm, and the grand dignitaries of court and state were present.

The Hospital had for its Object:

1. Instruction of the personnel of the relief corps.

2. Utilization in time of war as a reserve hospital for the army.

3. Treatment of the diseases and wounds of the populace for the purpose of the instruction of the personnel. The well-to-do were required to pay a certain price for medicines and subsistence; the poor on the other hand, were treated gratuitously. None of the attending physicians was recompensed. The total annual expenditures were limited in amount. The name was changed to "Hospital for the Society of the Red Cross." If humanity had been made the point of departure of their work, they would have been able to consecrate their hospital in time of peace entirely to the works of charity, but this was not the case. In this society everything was done with a view to the service in war and to this end it had to economize. The hospital established several classes of pay patients. Those who paid dearly were in the first class. It admitted persons from the lower class only when its funds for that purpose permitted.

The object of the hospital being to facilitate the preparation for the service in war, it was divided into three parts each under a special regulation.

1. Education of physicians, commenced in July 1889.
2. Instruction of female nurses, commenced in January 1890.
3. Instruction of male nurses, commenced after the war.

The hospital had also two extraordinary functions:

1. In time of peace to send succor in public calamities.
2. In time of war to functionate as a reserve hospital for the army.

This hospital was the organ through which all the technical questions of the Red Cross service were studied:—the different

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kinds of medicines to be employed; the indispensable dressing materials; the conveniences and perfecting of arrangements for surgical operations; the mode of instructing female nurses; the manner of caring for the sick,—in a word, all that has to do with the science and art of medicine was made the subject of profound studies in this hospital.

At the beginning of the war of 1894-5 the work of the Red Cross in its relations to the military authority had hardly been determined. Shortly however the Director of the Field Sanitary Service issued the following instructions. The Society of the Red Cross is authorized to extend its work only within the lines of communication, where it will be utilized in the service of evacuation of hospitals and infirmaries and in the reserve hospitals of the interior and on the sick transports:

The different services of the Red Cross in the war of 1894-5 may be grouped under four headings:

1. Service of the detachments of relief.

2. Service on board military transports.

3. Service of aid to the military reserve hospitals and to sick prisoners.

4. Service at the way stations.

Many defects in this working system became apparent when put to a practical test of real war. These deficiencies consisted chiefly in the following particulars:

1. The personnel and materials had been pre-arranged for hospital purposes—but the war coming on, these units had to be subdivided and sent to different regions.

2. Although female trained nurses were plentiful, the military authority thought it expedient not to send them without the lines of communication and ordered the employment of male nurses only, and these had to be newly recruited and were without previous instruction.

3. Neither the military authority nor the Red Cross had been prepared for evacuation of the field hospitals up to the head of the lines of communications, across regions without railways, and almost without any sort of roads.

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4. The Red Cross owned no boats for evacuation by sea, and so had to employ their relief personnel on the military transports.

5. The society had no medical supply depots.

At the close of this war, the society had to begin to prepare for the sanitary field service in time of war on a much more solid basis, by utilizing the experiences which they had acquired in the course of the war, as well as the experiences of the National Red Cross societies, strangers to the dispute. It was decided by new regulations to fill the gaps indicated in the foregoing resume of defects in the sanitary service of the Chino-Japanese war. Accordingly it was agreed:

1. To make the detachments of personnel and material of smaller numerical strength than those for an entire hospital, and in such fashion that it would be possible to divide them up or group them as desired.

2. To instruct male as well as female nurses.

3. To provide transport columns for the evacuation of the sick and wounded by land.

4. To construct hospital ships of the Society of the Red Cross for the service of evacuation by sea from the headquarters of the Etape to the mother country.

5. To organize medical supply depots for the purpose of receiving and transporting material in the event of war.

The service of aid in time of war according to the new regulations ratified by the Minister of War in 1898, comprises five subdivisions:

1. Service of relief detachments.
2. Service of transport columns.
3. Service upon boats of evacuation.
4. Service of resting stations.
5. Service of medical supply depots.

The president of the society is required to submit to the Minister of the Imperial Palace and to the Minister of War on October 31 of each year a succinct statement of the preparation for service in time of war for the ensuing year commencing April 1. Even plans and specifications for the erection of temporary

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hospitals in time of war, are drawn up and contracts let for their fulfillment on sight draft, as it were.

Delegates or deputies of the Red Cross Society of Japan are of three kinds:

1. General delegates.
2. Delegates-in-chief.
3. Delegates ordinary.

The general delegate represents the president at the principal headquarters; he directs and controls the delegates sent to the theater of war and assures himself that there will be no hindrance to the relief service. If the president judges necessary, he presents himself at the principal military headquarters and disposes of all questions without appointing a general delegate.

The delegate-in-chief is placed under the direction of the Etapes; he directs and controls the delegates and the physicians under his orders. The delegate-in-chief is under the orders of the inspector of the lines of communication, and on questions of relief he obeys the orders of the chief of the sanitary service of the lines of communication.

One delegate ordinary is appointed to control the physicians and other members of the personnel; he regulates also the different questions of relief. The delegates-ordinary obey the orders of the military authorities under whom they are placed and as to questions of relief receive the orders of competent military surgeons.

The object of the relief detachments is to aid in the service of the military hospitals and in the service of escort to the sick as well as other works of relief confided to the military authorities. A relief detachment is organized as follows:

Physicians	2
Assistant pharmacist	1
Chief nurse (male or female)	1
Nurses (male or female)	10
Adminstrator	1
Coolies	2
Total	17

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Twenty relief detatchments are assigned to each division (German Army Corps) and each detachment is competent to care for 100 sick.

The object of the transport columns is to render aid to the Sanitary Service of the Army by the evacuation of the sick and wounded by land. The organization of a transport column for the evacuation of 200 sick is composed of the following personnel:

Physician	1
Male attendants	2
Adminstrator	1
Chief porter	1
Carriers	60
Coolies	2
Total	67

Two transport columns are assigned to each division (German Army Corps).

The boats of evacuation are for the purpose of coming to the aid of the Sanitary Service of the Army in evacuation of the sick and wounded by sea. They are divided into two classes "A" and "B."

The boats of the first class (A) are for the evacuation of 200 sick or under and are composed of the following personnel:

Delegate	1
Chief Physician	1
Physicians	3
Pharmacist	1
Secretary	1
Pharmacy Assistants	2
Male nurses (of whom four are chief nurses)	40
Instrument repairer	1
Total	50

The boats of evacuation of the second class (B) are for the transportation of 100 sick or under and are composed of the following personnel:

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Delegate	1
Chief Physician	1
Physicians	2
Pharmacist	1
Secretary	1
Pharmacist's Assistant	1
Chief nurse	1
Male nurses	20
Instrument repairer	1
Total	29

Two of each class of boats of evacuation are furnished to the whole army. These boats are painted white on the exterior and carry the flag of the Geneva Convention and when cases of contagious diseases are on board, a yellow flag is added.

The object of the resting stations is to give nourishment and stimulants to the sick and wounded en route, for the purpose of assuaging their sufferings and recuperating their strength. These stations are established, after previous authorization by competent military authority, at ports of disembarkation or at railway stations.

This, then is the general plan by which the Red Cross of Japan comes to the aid of the Army Medical Service in time of war; it remains now to show how this personnel is recruited and instructed.

There are two methods in use for assuring a supply of physicians for the Red Cross; by engagement of students of medicine whose instruction is confined to its university at Tokio and by employment of physicians who have already obtained their diplomas. Regulations are minute and explicit for recruitment in this branch of the service, and the system is productive of an adequate supply of men.

As has been said above, relative to the hospital of the society, one of the principal objects of the establishment consists in the instruction of female nurses. The undergraduate nurses go there and receive their instruction, and are exercised in the practice of their art. The reserve female nurses pledge themselves, for a period of fifteen years, to take part in the service of relief in response to an appeal by the society in the time of war or in

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case of public calamity. In the local sections of the departments, instruction is given to female nurses in the local public and private hospitals, and the departments reserve the right to send some undergraduate nurses to the Hospital of the Red Cross at Tokio. These finally receive the designation of "infirmières normales," since on their return to their departments they serve as models to their local sister nurses.

The reserve departmental nurses are bound to respond to an appeal from the society for service in war, during a period of ten instead of fifteen years.

The male nurses receive their instruction in the military hospitals. In time of war, these nurses are often sent to the front and are considered as part of the personnel of the military hospitals.

Two points in their instruction are made prominent; to suitably and skilfully handle wounded soldiers; and to learn to submit to military control. The course of instruction is divided into two periods of five months each; during the first period, theoretical instruction is given in the hospital of the society or under direction of departmental instructors; during the second period, practical instruction is given in the military hospitals at the same time that this is given to the army nurses.

The instruction of the 1,560 personnel of the transport columns of the society in time of peace is not practicable inasmuch as this service is required only in time of war and has no peace function. Hence instruction in peace times is limited to chiefs of transport columns. On the breaking out of war, an instructed nurse assigned to each column assists the chief in instructing recruits for this service in great haste.

The Red Cross charges the Nippon Kaisha Company with the construction of its boats of evacuation specially designed for that purpose. In time of peace these boats are in the employ of that company but must be surrendered on seven days notice in the event of war.

It now remains only to indicate how the Society of the Red Cross exercises its organized personnel in peace maneuvers in

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preparation for the actual service of war. The principle is now well established that all national volunteer medical organizations shall be excluded from service on the front, and shall be confined to service on the Etape and thence to the home base, at resting stations and on hospital transports or boats of evacuation. Consequently it is of the highest importance in the peace exercises or maneuvers of the Red Cross, that no instruction be given upon matters relating to rescue of the wounded on the field of battle, or their care at first aid stations or in the field military hospitals, and that the members of the Red Cross organization be brought to clearly comprehend the precise sphere of action assigned to the personnel of that organization and to each member of the personnel. On this proposition the National Red Cross of Japan is entirely in accord with the military authorities.

This being settled in advance as a vital principle of cooperation of the military forces and the volunteer aid association, all concerned have rid themselves of a false notion and one that has hitherto worked a real injury to the Red Cross thru disappointment of its expectations, thus resulting in relaxations of its efforts thru false pride. Under the new understanding, the Red Cross, at the annual military maneuvers, concerns itself profitably in its own sphere by establishing hospitals and resting stations on the lines of communication and at railway depots to which centers dummy wounded or the actual sick and injured are transported by means of transport columns or by trains, and expeditiously detrained and cared for—everything being done with system and dispatch.

The Red Cross of Japan has gracefully accepted the limitations or restrictions of its work. The personnel of this society differs from the military in that the state makes no provision for pensioning the families of those members who might be wounded or killed in service in the front, and hence it is not just that the state should require such persons to risk their lives on the fighting line; moreover the state itself has a specially organized sanitary corps of officers and men whose duty is to render succor in this part of the field of operations. Here, too, the situation requires that discipline and calmness of mind which character-

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ize for the most part those only who have long been under military training and control.

A review of the history and organization of the German Red Cross for War would be instructive in the extreme, but lack of space forbids, and this omission may be condoned by the reflection that the Japanese Red Cross was laid out along the lines of the older German Red Cross organization, and has been selected as our examplar, because Japan has most recently undergone the refining process of her Red Cross in the crucible of the greatest conflict of arms of which history affords any record, and has rid herself of much dross of theory in the actualities of war.

PART II.

THE HISTORY AND THE PRESENT ORGANIZATION OF THE AMERICAN NATIONAL RED CROSS.

Space will permit of only a brief résumé of this part of our subject. The final accession of the United States to the articles of the Geneva Convention of 1864 and to those of the convention of 1868 at Paris, the signing of the treaty by the President, its ratification by the Senate and its proclamation by the President to the people of the United States, signalized the year 1882 as the great jubilee year of a nation's awakening from its Nicodemian slumber. The nation took its place, being signatory No. 32 to the Articles of the Geneva Convention, as the youngest entered apprentice.

On being legally constituted by act of Congress, the young Samaritan was christened "The American Association of the Red Cross." This association was dissolved and reincorporated by act of Congress in 1893 under the title of "The American National Red Cross" which in turn was dissolved and reincorporated in 1900. Owing to the growing importance of the work, the act of 1900 was repealed and the organization created thereby dissolved in 1905, and the same year by act of Congress, the present American National Red Cross was incorporated, succeeding to all the rights and property which had been hitherto

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held, and to all the duties which had been performed by the antecedent corporation.

According to the charter, the governing body shall consist of a central committee numbering eighteen persons, six to be appointed by the incorporators and twelve by the President of the United States, one of whom shall be designated by the President to act as chairman. "When six or more State or Territorial Societies have been formed, the Central Committee shall be formed as follows: Six to be appointed by the incorporators, six by the representatives of the State and Territorial Societies at the annual meeting of the incorporators and societies, and six by the President of the United States, one of whom shall be designated by him as chairman and one to be named by him from the Departments of State, War, Navy, Treasury, and Justice.

"The central committee shall have power to appoint from its own members an executive committee of seven persons, five of whom shall be a quorum.

"The American National Red Cross shall, on the first day of January of each year, make and transmit to the Secretary of War a report of the proceedings for the preceding year, including a full, complete and itemized report of receipts and expenditures of whatever kind, which report shall be duly audited by the War Department and a copy of said report shall be transmitted to Congress by the War Department."

State and Territorial Societies including the District of Columbia, the Philippines, Hawaii and Porto Rico have been organized as branch societies of the present organization.

The membership of the Red Cross has increased from three hundred at the time of its reorganization in 1905 to more than nine thousand in 1906 and far beyond that number at the present date, each member paying dues of $1.00 except life members who have paid life membership dues of $25.00.

Such, then, is a sketch of The American National Red Cross, its aims and purposes being to furnish volunteer aid to the sick and wounded of armies in time of war and to carry on a system of national and international relief in time of peace in the event of

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great national calamities. The former is directly pertinent to the object of our enquiry, the latter only indirectly so, tho vitally concerned in the self-evident proposition that an organization to be efficient at any indeterminate period must be more or less active all the time.

PART III.

WHAT SHOULD BE THE RELATIONS OF THE AMERICAN NATIONAL RED CROSS FOR WAR TO THE MEDICAL DEPARTMENTS OF THE ARMY AND NAVY?

The existing vagueness and want of definitiveness in the relationship between The National Red Cross and the Army and Navy has been a stumbling block for many years to the growth and efficiency of the Red Cross as an organization for war. This question must be settled once and forever before any healthful co-ordination can take place between the members of a voluntary and of a military aid organization. The school of experience is hard but when its lessons are heeded by both parties earnestly seeking for more light in the search for truth, not more surely will the magnetic needle point to the north than will the directing finger of experience indicate the basis not only of a theory, but of the true theory of co-ordination, leading us to the deduction of principles whose truth and applicability must be universally obvious at all times and in all circumstances of practice.

The waning light of the nineteenth century revealed to our astonished eyes the futility of a two-headed monster directing a work that required an organic solidarity, with fine adjustment of all its parts, and a correlation of all its forces, to maneuver strategically and to operate effectively in the actualities of war.

Fortunately, there has resulted from our past experiences a unanimity of sentiment on the part of the Red Cross and of the Army and Navy administrations to the effect that the former must be subordinate to the latter, not however in any sense of subserviency, as tho the eye should say to the hand "I have no need of thee," but rather in that military sense in which each unit of organization is subordinate to a higher unit while itself subordinates a lower unit in the military economy. "Unity is the soul of

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strategy" no less in deeds of mercy than in acts of carnage. Thus it was that the Society called Hakuaisha sent its members upon the field of battle to care for the wounded soldiers of the Imperial army *under the orders of the surgeons of the Army and Navy.* Thus it was that Dr. Koike upon his return from the sixth International Conference of the Red Cross was named Director of the Medical Service of the Army and *under his direction* were completed the rules for the service of succor of the Red Cross in time of war. Thus it was that the successive Surgeons General of the Imperial Army decided all questions of relief that came up under the respective Minister of War. Thus it was that the Director of the Field Sanitary Service issued instructions bearing upon the work of the Japanese Red Cross in its relations to the military authority—a matter that had hardly been determined at the beginning of the war of 1894-5.

Thus it was that the delegates ordinary were required to obey the orders of the military authorities under whom they were placed, and *to receive the orders of competent military surgeons as to questions of relief.* Thus it was that the Red Cross of Japan was brought clearly to comprehend the exact sphere of action assigned to the personnel of that organization and to each member of that personnel.

On this principle of military subordination of the voluntary organization, the Red Cross of Japan brought itself into entire accord with the military authorities, and, this vital principle of co-operation of the military forces and the voluntary aid association being settled in advance, the situation rid itself of a false notion of duplex responsibility and one which had up to that time worked a real injury to the Red Cross thru disappointment of the expectations of many of its adherents.

Thus, finally, has it come to pass, as we are happy to record, that The American National Red Cross has gracefully accepted the teaching of experience—that greatest school of masters—and has made an avowed declaration of its purpose to co-operate with the Army and Navy in strict conformity with the laws and usages of warfare on land and sea, yielding to the officers of the Army and Navy in their respective grades precedence in military rank

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which is defined as "that character or quality bestowed upon military persons which marks their station and confers eligibility to exercise command or authority in the military service within the limits prescribed by law."

So stands the Red Cross today in its true light as the great reserve voluntary aid organization incorporated into, and an intregal part of, the military and naval medical departments for war,—the official auxiliary instrumentality for applying voluntary aid to the sick and wounded soldiers and sailors of the contending forces, taking up its service in the rear and along the lines of communication where it relieves the army personnel for service at the front.

PART IV.

WHAT IS THE MOST EFFECTIVE ORGANIZATION OF THE AMERICAN NATIONAL RED CROSS FOR WAR?

As essential to the consideration of this question we lay down the following postulates.

1. A voluntary aid organization to be truly effective in war must have a large membership and ample funds. To this end it must secure universal popularity. The Red Cross must become an institution of the people by the people for the people. How can this end best be obtained? Is not Philanthropy closely related to Independence (July 4th.)? Is not Philanthropy the peer of thanksgiving for blessings received? Is not Philanthropy the twin sister of Commemoration of our dead soldiers and sailors? Why not assign then to the Red Cross a national holiday or commemorate alike on the thirtieth day of May the memory of those who "gave the last full measure of devotion" to their country's cause, and our love for those who may be willing to risk as much as they?

2. Other methods of arousing public interest and of extending propaganda with a view to increasing the membership and funds of the Red Cross are by personal solicitation, by public addresses, by enlisting the co-operation of the great democratic agency for the dispersion of knowledge and the moulding of opinion—the public press, by exhortation and agitation from the

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pulpit, from the college platform and in the public schools, and by discussion in our Boards of Trade by the business men of the country who have a right sense of proportion and a just discrimination of the fitness of things. The history of the Red Cross with its beneficent aims and purposes should be taught to the youth of our land thru ocular demonstration by means of moving pictures—the Kinetoscope—or by any means that will excite a child's interest, for to the rising generation we must look for recruitment in that coming army of The American National Red Cross when one out of every hundred of eighty-five millions or more will be enrolled under her white banner.

3. The lack of racial homogeneity in this nation due to its being "conceived in liberty and dedicated to the proposition that all men are created equal" demands as a guaranty of popularity of any national organization that on its Central Committee shall find representation, alike the Jew, the Hibernian, the Teuton—all classes upon whom has been conferred American citizenship, to the end that its governing power may stand for the widest catholicity of race and religion.

4. This Central Committee representing as it does the states, territories, and dependencies of a nation of eighty-five millions should itself be numerically large. This principle applies to all deliberative assemblies. On the other hand the executive Committee, from the nature of its functions, should be numerically small. The Central Committee should be numerically not less than half as large as the United States Senate—each politically governing body having one or more representatives. It should have an Honorary President—appointed by the President of the United States—who by his name alone would lend prestige to the organization and whose appeal for a generous endowment fund by public announcement would be responded to cheerfully by America's multi-millionaire philanthropists until the active members of the Red Cross assisted by a full treasury in their instruction and education toward a state of preparedness for their humane functions in war, would give to the nation an earnest of fulfillment of the great humanitarian mission of the Red Cross for War.

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In time of war the Central Committee should be transformed into a Council Extraordinary in order to expedite the transaction of its affairs, and its president should be empowered to augment provisionally the number of its members.

The Executive Committee, chosen from members of the Central Committee, should number seven and its chairman as well as the Honorary President of the Central Committee should be appointed by the Chief Executive of the land and the appointment confirmed by the United States Senate. Of the other members of the Central Committee one-sixth should be appointees at large by the President of the United States including one appointee each for the Departments of State, War, Navy, Treasury, and Justice, and the rest of the appointments apportioned to the politically governing bodies of the several states, territories and dependencies of the nation. These latter should be elected from among its members by a popular vote of the entire state section. The Governor of the State should be ex-officio the chief of the state section and should exercise a personal jurisdiction over the subchiefs of the local subsections. The Central Committee alone should have the power to authorize the creation of a local society and as the establishment of local sections, not self-sustaining and life-giving, only conduces to the rapid dispersion of capital, no authorization to establish and to endow them with administrative power should be given unless the section in question is possessed of an annual revenue of $200 or a membership of one hundred persons.

Until one or other of these requirements be fulfilled let the embryo organization act only as a medium for facilitating communication between the Central Committee and its local interests.

5. The membership of the Red Cross should be of three classes:

(a) *Honorary*, to be conferred by the Central Committee on distinguished personages of state and upon the most conspicuous and altruistic exponents of world-wide philanthropy. As was said by Mirabeau before the National Assembly of France, speaking of the Nation, so may it be said of the Red Cross that

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she "should honor as her heroes only those who have been her real benefactors." This class should be limited in membership to one hundred and the high honor conferred should be an earnest of most faithful and efficient stewardship in the vineyard of the Red Cross.

(b) *Special*, to be conferred by the Central Committee on persons who have rendered notable service to the Red Cross and without compensation. The membership of this class should be limited to one thousand and the members should be exempt from annual dues. It should constitute, as it were, a waiting list from which selections should be made to fill vacancies in the honorary membership.

(c) *Titular*, or those who pay annual dues and who belong to the commonalty of the nation—those whom Mr. Lincoln always eulogized as the "common people"—the muscle and sinew and common sense of the Red Cross. These are those who bear the brunt of the battle, of whom it is expected that every man will do his duty. This is the class most numerous in the annual general assemblies of the departments, and represents in the assemblies the vox populi, and they should here make known thru delegates or by direct vote their election of members of the great Central Committee.

The insignia of membership should be distinctive or as the German expresses it in the phrase "selbst eigenthümlich." The design or composition of the insignia should differentiate the classes of membership. The insignia of the honorary and special classes should be paid for by the recipient; insignia for the titular members should be furnished by the Red Cross gratis upon payment of the first annual dues and in cost or value should not be less than the amount so paid. The insignia should be accorded by no less a personage than the Commander in Chief of the Army and Navy of the United States—the great High Protector of the Red Cross—and should be conferred by the chiefs of sections with becoming ceremony. It will thus become a badge of "special trust reposed in the recipient" who is sent—commissioned as it were—by the Commander-in-Chief to work worthily in the national volunteer army for practical philanthropy.

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6. In this day of federalism and centralized military control, it goes almost without saying that there should be a powerful concentration of the many army corps of The American National Red Cross to the end that there may be a perfect cohesion in the regulations concerning administration, finance and the service of aid in time of war. The power of the Red Cross should rest centralized at Washington. Its Central Committee should convene once a year, and should be called in extraordinary session at the call of its president whenever an important subject-matter of urgency presents itself; fifteen members should constitute a quorum and in an emergency the Executive Committee should be authorized to act provisionally.

The president of the Central Committee should convoke a National General Assembly once every three years or in extraordinary session whenever he deems it necessary. At these general assemblies, questions of high import should be brought under discussion by previous arrangement. The Executive Committee of the Red Cross should be the recipient and custodian of all monies and gifts, and all expenditures should be made thru this committee, and its fiscal representative should be a federal accountant for the War Department.

The local sections should be authorized to withhold one-fourth part of their local revenue (except the payment of first annual dues), and the revenue so conserved should be for the most part employed for the preparation of its personnel and material for time of war.

7. The Red Cross should own and operate a hospital at one of the large medical centers and this hospital should be affiliated with a medical school such as Rush, Jefferson, Johns Hopkins, the University of New York or that of Georgetown. This hospital should have for its object the instruction of undergraduates in medicine, the training and instruction of male and female nurses and the members of the Relief Detachments as well as the Chiefs of the Transport Columns.

The trained personnel of this National Red Cross Hospital should be sent to the State Sections to instruct and train local Red Cross nurses in the public and private hospitals of the com-

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munity. The Chief Administrative officer and the Executive officer of the Central Hospital should be medical officers of the Army, Navy, or Public Health and Marine-Hospital Service.

In time of peace the hospital should be nearly or quite self supporting from its several classes of pay patients, furnishing, however, medical attendance, nursing, medicines and subsistence gratis to the poor as far as its means permit. It should furnish aid in public calamities.

In time of war the hospital should be utilized as a reserve hospital for the army. Here should be studied and worked out all the technical questions of the Red Cross Service—in short all that has to do with the application of medical science in the military practice.

8. The limitations of the Red Cross Service in War having been clearly defined in part 1, it follows as a corollary that its sanitary formations will be utilized in the service of evacuation of hospitals by land and by sea, in the reserve hospitals of the interior, at the resting stations on the lines of communication and at railway stations and ports of disembarkation. The service of aid in time of war, then, should comprise five subdivisions:

1. Service of detachments of relief.
2. Service of transport columns.
3. Service of boats of evacuation.
4. Service of resting stations.
5. Service of medical supply depots.

The object of the detachments of relief being to aid in the service of the military hospitals and in the service of escort to the sick, its organized personnel should be of such numerical strength as to make it competent to care for 100 sick and wounded. A detachment of relief should be organized as follows:

Medical Captains or Lieutenants	2
Sergeant 1st class Hospital Corps	1
Sergeant Hospital Corps	1
Privates 1st class Hospital Corps (or female nurses)	10
Privates Hospital Corps	2
Total	16

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Twenty detachments of relief should be assigned to each army corps.

The object of the transport columns being to render aid in the evacuation of the sick and wounded by land, its organized unit for the evacuation of 200 sick should be composed of the following personnel:

Medical Captains or Lieutenants	2
Sergeant Hospital Corps	1
Privates 1st class Hospital Corps	10
Privates Hospital Corps	50
Total	63

Two transport columns should be assigned to each army corps.

The boats of evacuation are for the purpose of coming to the aid of the Sanitary Service of the Army in evacuation of the sick and wounded by sea. The Sanitary Formation for the evacuation by sea of 200 sick should be composed of the following personnel:

Medical Major				1
Medical Captains or Lieutenants				3
Sergeant 1st class Hospital Corps				1
Sergeants Hospital Corps				5
Privates 1st class Hospital Corps	8	or	Privates Hospital Corps	8
Privates Hospital Corps	32		Female nurses	32
			Total	50

Two boats of this capacity and two of capacity for 100 sick with a proportional personnel should be furnished to the whole army.

The resting stations are for the purpose of affording nourishment, stimulants and encouragement to the sick and wounded, en route, with a view to recuperation of their strength. The stationary personnel need not be large, as it may be supplemented by the attendants en route.

The establishment of supply depots may properly follow the lines laid down for the Army Medical Service.

Such then is the general plan by which The American National Red Cross should come to the aid of the Army and Navy medical service in time of war. It remains only to add that on

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the principle laid down in this essay, the relief detachments of the Red Cross should be excluded from service on the battle-ships of our navy for the reason that each ship in action is within the zone of fire and every man on her is literally on the firing line. The Red Cross should provide for the construction of her own boats of evacuation and their ready adaptation for service in war, by some such project as that so ingeniously devised and carried out by Japan as hereinbefore related.

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OPERATIVE PROCEDURES IN GUNSHOT WOUNDS OF THE NERVES.

IN connection with a series of cases of gunshot wounds of the nerves, Henle remarks that suture was made with fine silk. Twice the line of suture was incased with flaps of fatty tissue, once with a portion of injured and resected brachial artery (method of Formatti). The distance between severed nerve-ends proved too great in many cases to admit of any operative union. Grafting of one nerve into another gave three results in six cases. These graftings consisted in suturing about one-third of the one nerve into a flap cut from one-third of the other. Twenty operations were performed on nineteen patients presenting paralyses;—nine cases improved, eleven cases without result. Of all but two cured, in the rest the missing functions were but partially restored. Too short a time was permitted to await final results. Most probably some of these cases regained better and greater functional powers of the muscles involved, after they had been dismissed. Stress is laid upon the importance of rapid transport of all cases of injury to peripheral nerves, to a point where exact surgical treatment can be administered.

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THE MEDICAL SERVICE OF THE UNITED STATES MARINE CORPS.

By FREDERICK L. BENTON, M. D.,

SURGEON IN THE UNITED STATES NAVY.

THE recent critical political condition in Cuba, which for a time threatened to assume serious proportions involving loss of life, destruction of property and general paralyzation of trade and commercial life in the Island, caused interest for a time to be centered upon the movements of the organization officially known as the "United States Marine Corps"; for upon them at this time, devolved the duty of hastening to the disturbed area, to assume control of the military situation on shore, prevent the loss of life and destruction of property and to use such methods as were necessary to preserve the balance of power until the arrival of larger forces or until conditions were settled by more peaceful methods. A brief history of this corps, its methods of work, duty and organization, with a description of its medical service under its varied conditions of duty, both at sea on the warships of the navy, on landing forces from the ships, expeditionary duty with the army, such as has lately arisen in Cuba, in the past in China, Africa, the Philippines and numerous times in Central and South America, and in fact almost everywhere where the vessels of the navy have been stationed, might be of some interest to those who have heard of this organization, of how warships have proceeded to some out-of-the-way place and have landed marines; how the situation was controlled at the time or settled by more peaceful methods of diplomacy.

This briefly has been the routine of duty as performed by the marines, as far as is known by the public at large, but a short history of this organization, will not, I hope, be out of place at this time before this Association of Military Surgeons, for closely interwoven with the military achievements of the Marine Corps

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performed afloat and ashore in many corners of the globe, in civilized and savage warfare, the history of the Medical Corps of the Navy is closely allied, for at all times and at all conditions of service, such as no other military organization has ever been called upon to perform, the medical officer of the navy has been present and has always performed his duties with credit, therefore a brief history of the Marine Corps and its medical service is briefly traced.

The first authentic record of the Marine Corps in this country that we have, dates back to 1740, when three regiments of Colonial Marines were established by act of Parliament. The Commanding Officer, Field and Staff Officers, were appointed by the Crown; the Company Commanders and Lieutenants were nominated by the Provincial Government. There is no record of this organization having its own Medical Corps, for then its Medical Corps was obtained from the Royal Navy as at present from our own.

The original Marine Corps of the United States was established by act of Continental Congress, October 9, 1775, and numbered 1,000 men. It was composed of men who were all good seamen, were acquainted with maritime affairs and so could perform equally well the duty of the sailor as well as that of the soldier as the emergency required.

Their history showed that they performed valuable services during the Revolutionary War; notably around Philadelphia, in the attack upon New Providence and upon vessels of the new navy.

During this period their medical service was rendered by the medical officers of the navy who were known as surgeons and surgeons' mates. They were not commissioned officers although classed as such, and were often employed from civil life for the cruise. These medical officers doubtless performed their duties in much the same manner and under the conditions custom and tradition have handed down to us today. They had no Hospital Corps and worked under the disadvantage of being provided with such assistants as could be provided from the deck force, from men who were untrained and incapable above, to be transferred below to the surgeons' division during action.

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It is worthy of note that this condition still existed in our own naval medical service until the outbreak of the Spanish-American war in 1898, when the United States Navy Hospital Corps was established.

As quoted from Cullom's History of the Marine Corps, "at no period of the history is it probable that the Marines were more important than during the War of the Revolution." In many cases they preserved the vessels to the country in suppressing the turbulence of their ill assorted crews and the effect of their fire not only then, but in all subsequent conflicts, under those circumstances in which it could be resorted to, has been singularly creditable to the steadiness and discipline. The history of the navy even at that early date, as well as in these latter times, abounds with instances of their gallantry.

The Marine incurs the same risks of disease and tempests, undergoes the same privations, suffers the same hardships and sheds his blood in the same battles as the seamen and the nation owes him the same rewards, and the writer might add, gets them. These statements are all true and much more could be added, but time and space do not permit. There is little to say about them and their medical service during this period, but to note that at the close of the war, the Marine Corps was disbanded and like the army and navy passed from existence.

In April 1798 the present Navy Department was established and in July of the same year the United States Marine Corps was created. The Commissioned Officers were appointed by the President and he was empowered in case the Marines were ordered ashore, to appoint the necessary Staff Officers with the exception of the Medical Officers, who were assigned then as now, from the Medical Corps of the Navy in cases where the Marines were serving on warships, or from them were sent as landing forces or expeditionary duty with the ships acting as a base, or with the army.

In cases where it was impossible to secure the medical officer from the navy the Commanding Officer of the Marines was authorized to hire a civilian physician by contract, which arrangement still exists and is utilized in emergencies.

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This period following the reestablishing of the Marine Corps in 1798, was one of the most useful and active of its existence, for from that period until the present day the service of the Marines has been closely allied with that of the Navy Medical Corps and during their service with the brief war with France, they shared equally the honors that came to the navy.

The war with Tripoli added to their achievements both at sea, and in the interior of Africa. Service in the war of 1812, on the Great Lakes, at sea, on duty with the army on several occasions notably at the capture of Washington, and in the attack on Baltimore and New Orleans.

The service of the Corps during the campaign against the Creek Indians in Florida in 1836 was also a subject of favorable commendation.

Here it is of interest to note that the medical officers on this expedition were detailed both from the Army and the Navy Medical Corps to serve with the Marine Regiment during that campaign, and the hospital corps detachment secured, being detailed from the line of the army and a few of them from the navy and Marines, for at this time no Hospital Corps existed in either branch of the service, the Hospital Corps of the army being established first in 1887, while that of the navy still later in 1898, although it had been agitated and legislation for its establishment had been asked for from time to time.

The Mexican War again called the Marines and the medical officers of the navy to be associated together in active service under General Scott. Later on Perry's memorable expedition to Japan which partook of the nature of active expeditionary duty, upon the attacks of the Chinese pirates, when both the Americans and English served together, and which the Navy Medical Corps were present to render its service to both nations.

From this period followed active expeditionary duty in the insurrection of Montevideo, against the savages in Washington Territory, against the pirates in China, against the savages in Waya, expeditionary work in Paraguay, John Brown's insurrection and numerous occasions until the outbreak of the Civil War in which the Marines and the naval medical officers were associated

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both on shipboard and landing forces, and on shore with the army. It is but a repetition at best of their previous duty as is the case also in the Spanish-American War and in the Philippine insurrection, in the Boxer campaign and expeditionary duty still later in Central America and last of all in Cuba.

As this brief narration of the duty performed by the Marine Corps under the many varied conditions is an attempt to show that although it has no distinctive Medical Corps, its medical service has always been efficiently done by the Medical Corps of the Navy and will show to those who visit our warships as they lie at anchor before us in the harbor, that the duty of the Marines and the medical officers of the navy does not entirely consist in pacing the decks or taking their afternoon tea under pleasant surroundings.

With a military history of such a varied and extensive nature, naturally the next question to interest us as medical men relates to its medical service.

Strictly speaking it has none, for while the Marine Corps has its other Staff Officers and departments, such as its Adjutant and Inspector, Paymaster and Quartermaster Departments, it has no medical service of its own, depending entirely upon the Medical Corps of the Navy for its service so that the description of its medical service is but that of the medical organization of the navy with Marines such as has been rendered since the earliest date of its establishment.

A description of the medical service as is rendered the Marines while on board one of the warships of the navy is hardly necessary at this time, except to state that the Marines who number from ten to eighty men are considered by the Medical Officer as a part of the ship's crew to receive medical treatment, while officially the Marine guard is considered a distinct department, they not being considered as a part of the ship's complement. As the most important duty rendered by the Marine Corps is performed ashore as an expeditionary force from the fleet or with the army in varying sized detachments, the scheme of organization of the medical service must of a necessity be a flexible, or sliding scale which must obviously change its char-

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acter by number solely. It must meet the character of the service required for which the Marines are ordered, must be mobile, compact, easily handled, complete as possible and in every detail, assist in the military necessity and not hamper the working of the organization which essentially is of an expeditionary character and whose mobility is its strong point; therefore any medical service but that of the simplest character commensurate with efficiency is the medical service required for service with the Marines.

To this end the following organization has been established by the medical department of the navy in its service on shore with sailors and Marines in landing forces from the ships, and has proven itself satisfactory for its simplicity and efficiency in conditions such as have arisen in the past.

Marines are landed for expeditionary work from naval stations, yards or ships; are made up of detachments of varying size and organized into expeditionary brigades or provisional regiments or from a part of the fleet or ship's landing force. It labors under the disadvantage of having no defined military unit; no company organization nor yet the regimental unit of the army, therefore the medical organization must of a necessity adapt itself to this temporary arrangement:—

The medical service on shore in time of action is divided into the Service of the Front and the Service of the Rear.

The service of the front includes the firing line, dressing station, and field hospital.

The service of the front is rendered by the ambulance party, which corresponds to the unit known in the army as the Ambulance Company and aims to provide not less than a ratio of four per cent of medical assistance for those engaged.

The service of the rear includes the base hospital, or hospital ship of the navy, the medical supply depot and the transportation arrangements for the sick to the hospitals in the United States.

The ambulance party which provides the personnel of the firing line, dressing station and field hospital is distributed as follows:—As nearly as possible, one hospital steward, one hos

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pital apprentice, 1st class, and one hospital apprentice are assigned to each section composed of one commissioned officer, three non-commissioned officers and twenty-four men as a unit, two such sections composing a company.

As this proportion is a liberal one the ambulance party of a company of about fifty-six is seen to consist of two hospital stewards, two hospital apprentices, 1st class, and two hospital apprentices as a minimum, with four stretchermen and extra Hospital Corps men as circumstances demand and permit of.

The above arrangement is that which is laid down by the United States Navy Regulations for landing forces from ships of the navy and is applied also to the Marines when on shore duty from the ships at the same time, but on detached service from the ships of the navy and when serving with the army, this proportion of Hospital Corps men is rarely obtainable.

From this unit are detailed such hospital stewards and apprentices as are considered necessary for duty at the dressing stations and the field hospital.

First aid is rendered on the firing line by the hospital apprentice, 1st class, under the direction of a junior medical officer or a hospital steward, who do little but apply the first aid dressings, control hemorrhage and direct the removal of the wounded by the stretcherman to the dressing stations in the rear of the firing line.

The dressing stations are located about three hundred yards in the rear of the firing line, where the wounded may be readily removed by the stretchermen, under cover as is protected from the rifle fire as the natural contour of the ground or as a temporary earthworks will permit.

One or more medical officers with hospital stewards and hospital apprentices here render the first systematic surgical aid; the first aid dressings are readjusted if necessary, splints applied, hemorrhage controlled and diagnosis tags attached and the patient placed in as favorable a position as possible for transportation, by litter, ambulance or other wheeled transportation, to the field hospital.

The ambulance station or point nearest to the dressing sta-

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tions to which ambulances can safely approach is not a recognized station in the service of the front of the navy or Marines when serving independently or together on shore in landing forces but there is no doubt that its usefulness and necessity are very apparent when landing forces from the ships are acting at a distance from their field hospital in which event such wagons, carts, animals and native carriers are hired or impressed into service as has been done in the past for similar emergencies. It becomes doubly necessary, due to the locations of the dressing stations, these being located but three hundred yards in the rear of the firing line at which point it would not be feasible to drive the ambulances when the troops are engaged, to this end there is little doubt but that in the future this ambulance station will be adopted when possible for the medical department of the navy when on shore duty with landing forces.

The Field Hospital, the last station of the service of the front, is in naval and marine expeditionary duty a flexible unit, depending entirely upon the nature of the service as to its size and organization; varying in capacity from the regulation twelve bed regimental hospital such as the army use on detached service and is also issued by the navy for detached expeditionary duty with Marines, to one which would be sufficiently large to act as a Base Hospital to accommodate at least fifteen per cent of the command in the absence of the base hospital or the hospital ship of the Navy.

The Field Hospital is in command of the senior medical officer on shore, who selects his assistants from among those known to be most proficient in special lines and Hospital Corps men from those belonging to the ambulance party. As a general thing the personnel and material of the Field Hospital is secured from the Flagship.

The service of the rear includes the Base Hospital or Ship, the medical supply depots, and transportion arrangements of sick, wounded and convalescents to the Naval Hospitals in the United States.

The service is efficiently rendered in the larger and newer vessels of the battleship and cruiser type which have the advan-

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tage of each ship providing in itself a complete service of the rear, including that of a complete section of a field hospital, Medical supply depot, transportation with systematic and complete facilities where satisfactory medical and surgical aid under the excellent aseptic conditions, with an abundant supply of ice, sterilized and hot water at hand.

This briefly expressed is a synopsis of the medical organ zation of the Navy when serving on shore duty with the Marines but as the Marines are frequently serving with the army on detached and expeditionary duty, this medical organization is altered to correspond to the changed conditions of the service.

When ordered to duty with the army, the entire Marine organization of whatever unit it may happen to be, all staff departments, including the medical officers and Hospital Corps of the navy attached, being directly under the Commanding General of the Brigade, Division or Corps to which the Marines may be assigned, the Marines being organized into Provisional Regiments for such duty.

The status of the Medical Department of the Navy on duty with the Marines serving with the army is not fixed by regulation as is that of the Marines. They are both still working under Navy Regulations, coming under the Articles of War of the Army so far as discipline is concerned; the routine of duty and drill, customs of the service etc., being altered only to the extent to make them correspond to that of a unit of the same strength belonging to the army, this being understood. The medical service as is rendered to the Marines by the Medical Department of the Navy when serving with the army, resolves itself, but to that of only the service of the front and corresponds exactly to that which is provided by a unit of the same size of the army.

The personnel of the Medical Department of a provisional regiment of Marines is not laid down in the Navy or Army Regulations but the following subjoined tables represent a minimum of what is provided for a provisional regiment of a thousand Marines while serving with the Army.

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1. Regimental Surgeon. (Lieutenant Commander).

4–8 Regimental Assistant Surgeons. (Lieutenants, or Lieutenants Junior grade).

2–6 Hospital Stewards.

10–15 Hospital Apprentices 1st class or Hosp. Apprentices.

One Regimental Field Hospital equipment complete for a regiment of 1,200 men provided by the navy, which requires:—

1 Escort wagon for transportation.

3 Ambulances when serving on detached duty; or one to each battalion which are provided by the Quartermaster of Marines.

It will be seen that the number of medical officers assigned to 1,200 men is greatly in excess of that laid down in the Field Service Regulations of the Army. The reason of this is evident when it is understood that the Marines rarely actually serve together in units larger than the battalion but are divided into posts and subposts on detached service, and as they are called to duty with the army solely in emergencies, the necessity for more medical officers becomes evident.

For such detached service for a company or smaller detachment of Marines the medical equipment as far as possible consists of:

1 Medical Officer (Lieutenant, or Lieutenant Jr. grade).

2 Hospital Corps men of the Navy.

1 Expeditionary Medical case, provided by the Navy.

1 Expeditionary Surgical case, provided by the Navy.

1 Ambulance, provided by the Quartermaster, or other wheeled transportation provided by the Marines. In addition the Commanding Officer is requested to provide two men to act as bearers and to assist the medical officer of the detachment.

This Regimental Field Equipment is held in readiness for expeditionary duty at each of the Navy Medical Supply Depots in the United States and additional outfits in the Philippines. They are packed and prepared for immediate shipment and upon notification by the Secretary of the Navy that an expeditionary force of Marines is to be organized for active service the Surgeon General directs the disposition of such field equipment, assigns such medical officers and Hospital Corps men as are necessary,

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arranges for subsistence and additional supplies not supplied by the Medical Department, including ambulances, transportation facilities, animals, forage and special details are provided by the Quartermaster of Marines.

Transportation en route and subsistence is furnished by regularly furnished naval vessels acting as transports and also the accommodations on board during the voyage, the Marines are reexamined for ineffectives, instruction in first aid is given and those found physically unable to perform active duty are either left on shipboard or assigned to light duty or special duty. As a matter of fact, few such are found, as they are previously examined when the detail is being made up and those found physically unable to perform active field service remain at home with the detail to guard the yards, stations or property left in their charge.

The Marines rarely serve as an independent military organization for any prolonged period. They are however self supporting, carrying pay, commissary and provisional medical supplies with them and as such can render efficient service in these departments for an extended period, but as their duty is emergency duty, intended to cover the interval until the army can arrive when the Marine organization in its entirety becomes a part of the army of invasion or occupation, including all staff departments.

In this manner the Medical Department becomes to all intents and purposes a part of the army, so far as character of duty and command can make it so. Its organization however remains unaltered, personnel and material unchanged and its own methods of performance of duty is continued, altered only to the extent to have it correspond to the army routine.

Medical supplies, ambulances and everything necessary for future service of the front, are in this event, supplied from the Army Supply Depots.

In a permanent camp with the army, there is no Regimental Hospital. Each Regiment has a small infirmary in a suitable building or one hospital tent in which minor cases are treated and an A wall tent to serve as surgeon's office and dispensary.

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All cases requiring hospital treatment are immediately sent to the Brigade or Division Field Hospital.

After all has been said of the Medical Service of the Marine Corps and its close relation to the navy and army, one cannot help but remark that as long as efficiency and preparedness which has been and still are the ever present aims of all our government services there is no reason to doubt but that the Medical and Hospital Corps of the Navy will continue to render its best service to the Marines as it has so many times in the past with efficiency to the Marines and credit to itself.

ENURESIS IN SOLDIERS.

ON the average twenty-one per cent of soldiers (*Roths Jahresbericht*) were discharged from the French army for enuresis during 1895 to 1901. The number of cases steadily increased from 105 in 1895 to 243 in 1900. A careful observation and investigation showed that the majority of the cases were suffering from a slight polyuria which at times developed into a real diabetes insipidus. In all of Carel's cases an increase of Na Cl was discovered in the urine. Sometimes as high as 40 G. of Na Cl were excreted per day. He considers the incontinence and polyuria a sign of general degeneration. Perrin is of the opinion that enuresis is not due to a weakness of the bladder, for that would show itself also during the day. In nine cases out of ten it is due to profound sleep. Cold weather favors the condition while warm weather causes it to disappear, probably due to the increased perspiration of the skin. Punishment and suggestion are of no avail in the treatment. Remedies may have a reflex action on the brain causing the patient to awaken or may favorably influence the tolerance and capacity of the bladder. Local applications may act by exciting the reflexes, creating a desire to urinate and possibly awaken the patient for that purpose. Perrin has found the faradic current an excellent local application in these cases.—FRED J. CONZELMANN.

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OBSERVATIONS UPON TREPONEMA PERTENUIS (CASTELLANI) OF YAWS AND THE EXPERIMENTAL PRODUCTION OF THE DISEASE IN MONKEYS.

By CAPTAIN PERCY M. ASHBURN,
MEDICAL CORPS UNITED STATES ARMY,
AND CAPTAIN CHARLES F. CRAIG,
MEDICAL CORPS UNITED STATES ARMY,
CONSTITUTING THE UNITED STATES ARMY BOARD FOR THE STUDY OF TROPICAL DISEASES AS THEY OCCUR IN THE PHILIPPINE ISLANDS.

Part II

THE EXPERMENTAL PRODUCTION OF YAWS IN MONKEYS.

Historical.—The literature relating to the production of framboesia in monkeys by the inoculation of material from the lesions of the disease is very limited and so far as we have been able to determine Neisser, Baerman and Halberstadter, working together in Batavia, Java, and Castellani, in Colombo, Ceylon, have been the only investigators to produce the disease in these animals. To Castellani belongs the credit of demonstrating *Treponema pertenuis* in the experimental lesions in monkeys, the other investigators mentioned not searching for the organism although in their report, they mention Castellani's discovery of a spirocheta in the lesions in man.

Neisser, Baerman and Halberstadter (24) inoculated seven monkeys with serum from yaws papules, the inoculation being made upon the breast and over the eyebrow, by rubbing the infective material into small abrasions in the regions mentioned. Framboesia developed in all of the animals, the incubation period varying from 13 to 14 days in two Gibbons to 96 days in Macaccus. In the latter, five in all, the incubation period was 22, 31, 65, 91, and 96 days respectively. So-called secondary lesions devel-

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oped in three of the animals, 40, 49 and 70 days after the primary lesions had appeared, the authors stating that the secondary lesions always appeared upon the site of the initial lesion and extended in a serpiginous manner into the surrounding skin. They did not observe a generalized eruption in any of the animals. They also inoculated seven monkeys (*Mac. nemestrin*, *Mac. niger* and *Mac. cynomolgous*) with material from yaws papules in monkeys suffering from the disease. In only one of these animals, a *Mac. niger* inoculated from a *Mac. nemestrin*, did the disease develop after an incubation period of 34 days.

The authors then endeavored to produce the disease in monkeys by subcutaneous inoculation of a mixture of splenic juice, bone, marrow and lymph glands from a Gibbon suffering from yaws. They inoculated three *Mac. cynomolgous*, with negative results in all. Inoculation of three monkeys of the same species with splenic pulp and three with the bone marrow from an infected *Mac. cynomolgous*, resulted in one of the three inoculated with bone marrow developing framboesia after an incubation period of 44 days.

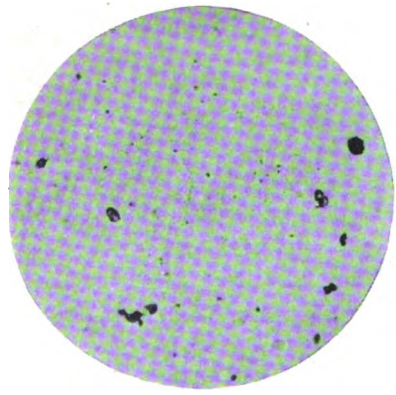

Fig. 1. T. pertenuis from human yaws lesion, x 1500 (about).

These investigators also demonstrated that monkeys sucessfully inoculated with syphilis developed framboesia upon inoculation. In one instance a *Mac. niger* was inoculated upon April 17th with syphilis and developed the primary syphilitic lesion upon May 13th. On May 28th the same monkey was inoculated with framboesia and the typical yaws papule developed at the site of inoculation upon August 1st. Another monkey, a *Mac. cynomolgous*, was inoculated September 23rd with framboesia, and on October 25th with syphilis. Upon November 8th a typical yaws papule appeared at the site of inoculation, while on November 15th the characteristic syphilitic lesion appeared.

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From their experiments the authors mentioned draw the following conclusions:

1. Framboesia is inoculable from man to higher and lower apes.
2. Framboesia is inoculable from ape to ape.
3. Infection in monkeys following inoculation of the bone marrow proves that framboesia is a general and not a local disease.
4. Apes infected with syphilis are susceptible to fromboesia.

Castellani (25) inoculated four Ceylon monkeys (species not given) with framboesia but one of which developed the disease, after an incubation period of 19 days. A small papule, which enlarged slowly and became covered with a crust, developed at the site of inoculation. Two months later, the original papule being still present, four other papules appeared, two upon the forehead near the first lesion, and two upon the upper lip; one of these papules disappeared in a few days, but the other three enlarged slightly, became moist, and a yellowish crust formed over each. At the end of three months all of the lesions had healed. In the scrapings from the lesions *Treponema pertenuis* was demonstrated repeatedly.

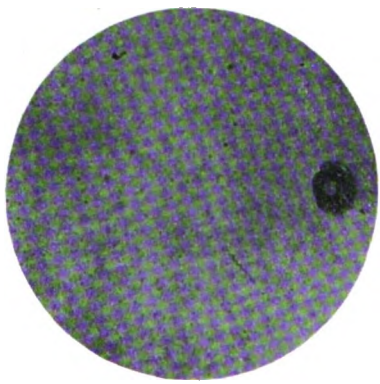

Fig. 2. T. pertenuis from human yaws lesion, x 1500 (about).

Six weeks after the disappearance of the yaws lesions this monkey was inoculated with syphilis, and sixteen days later a typical syphilitic lesion developed, accompanied by general glandular enlargement.

The positive results obtained by the investigators whose work we have briefly reviewed lead us to partially repeat their experiment with a view to determining if the native monkey of the Philippines *Cynomolgous philippinensis*, Geoffroy, could be infected with framboesia, and of adding, if possible, something to our knowledge concerning the disease as observed in these

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animals and the relation of *Treponema pertenuis* to the lesions produced by experimental inoculation. While our observations cannot be considered as completed we believe the results so far obtained are of interest and should be put upon record. In the main our work has confirmed the results of the above mentioned investigators and we believe that we are justified in asserting that framboesia is easily inoculable from man to monkeys and that *Treponema pertenuis* is constantly present in the active experimental lesions and stands in a causal relationship to them.

Material and methods.—The monkeys used in our experiments were all *Cynomolgous philippinensis*, Geoffroy, the common native monkey of the Philippine Islands. We have experimented with eleven monkeys, the inoculations in such animals being both by the subcutaneous pocket method and by vaccination, i. e., rubbing a little of the yaws serum into slight abrasions upon the skin. The site of inoculation was generally the skin of the abdomen and forehead, but the inside of the thigh was used in inoculating with syphilitic serum. The method by vaccination proved, in our experience, slightly more successful than the subcutaneous pocket method but it is probable that if a larger number of the animals were used there would be found to be no difference in the results obtained. In every instance of successful inoculations the slight inoculation wounds healed rapidly and the site of inoculation appeared normal until the development of the yaws papules at periods varying from 16 to 35 to 42 days after the inoculation. The serum used in making the inoculations was obtained in the manner already described for securing smears for staining.

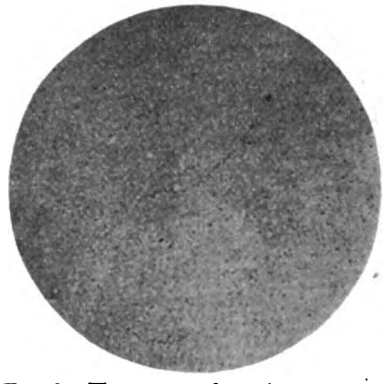

Fig. 3. T. pertenuis from human yaws lesion, x 1500 (about).

In searching for *Treponema pertenuis* in the lesions in monkeys the same methods of securing specimens of the serum and

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staining them were used as have been already described in Part I of this report.

We also endeavored to secure cultures of *Treponema pertenuis* from the lesions in monkeys, using methods similiar to those employed in our endeavors to cultivate the organism from human lesions.

In considering the experimental production of framboesia in these animals we were desirous of investigating many problems intimately connected with the subject aside from the mere successful result of inoculation, and while we have attempted to solve some of them, we do not feel justified, as yet, in expressing an opinion regarding our results in certain directions. This is especially true of our experiments regarding re-infection and the local or general, nature of the disease as it is observed in monkeys in general, for our experiments in these directions are too few to be of definite value, although they are suggestive. The following protocols of our inoculations include those already completed and those in which it is too early, as yet, to predicate the result.

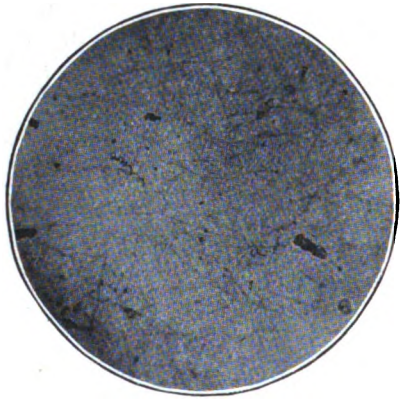

Fig. 4. T. pertenuis from human yaws lesion, x 1500 (about)

PROTOCOLS OF THE EXPERIMENTS.

Monkey No. 1. (3070). This monkey was inoculated on February 16, '07, with serum from a typical yaws papule in a young Filipino girl. A subcutaneous pocket inoculation was made in the skin of the abdomen, and some of the serum was rubbed into a scarified area over the left eyebrow. Smears of the serum prepared at the time of the inoculation were made showed numerous examples of *Treponema pertenuis*. The inoculation wound healed rapidly and the animal appeared normal until March 4th, when a small papule covered with a yellowish crust was noticed at the point of the inoculation upon the abdomen; the crust was removed and smears made from the serum which exuded from the minute granulations. An examination of these smears demonstrated the presence of

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Treponema pertenuis in large numbers. The period of incubation was about sixteen days. Upon March 8th, a small crusted papule had appeared at the point of inoculation over the left eyebrow and smears of serum from this lesion also showed *Treponema pertenuis*. Both the lesions enlarged slowly, especially the abdominal lesion, and healing in the center, extended in a circular manner into the surrounding healthy skin. The lesion upon the head had disappeared by May 14th but the abdominal lesion persisted until May 28th. Duration of the disease, eighty-four days. Upon May 15th, this animal still showing yaws papilloma upon the abdomen was inoculated with serum from a chancre which contained numerous *Treponema pallidum*. A subcutaneous pocket inoculation was made in the skin of the abdomen and in addition some of the serum from the chancre was rubbed into an abrasion upon the inside of the left thigh. No results have followed these inoculalations to date, June 30th, 1907.

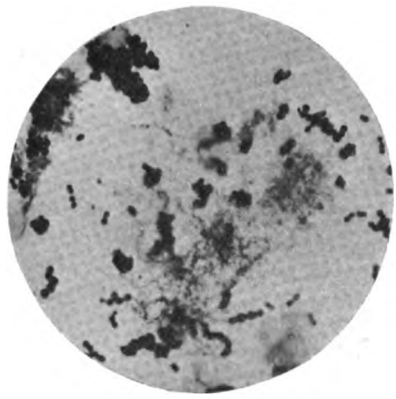

Fig. 5. T. pertenius from capillary tube culture, showing agglutination and probable longitudinal division, x 1500 (about). Note comparative size of treponema and cocci.

Monkey No. 2. (3071). Upon February 16, 1907, this animal was inoculated subcutaneously on the abdomen and through an abrasion over the left eyebrow with serum from a yaws tubercle from the same case as Monkey No. 1 (3070). Upon March 8th a small crusted papule was observed at the site of inoculation on the head, which gradually enlarged until it reached the size of a small hazel nut; a typical yellowish crust developed, which upon removal, disclosed the characteristic pink granulating surface of a yaws papilloma. Examination of the serum from the lesion demonstrated repeatedly the presence of *Treponema pertenuis*. The incubation period in this case was twenty days. The lesion had entirely disappeared upon May 2nd, thus making the duration of the disease fifty-seven days. Upon May 16th this animal was re-inoculated with yaws serum through a subcutaneous pocket upon the abdomen and an abrasion over the right eye brow. No lesion has appeared to date, June 30th, upon the abdomen but the inoculation wound over the right eyebrow suppurated and a deeply excavated ulcer resulted. Repeated examinations of the material from the ulcer have always resulted negatively for *Treponema pertenuis*.

Monkey No. 3.(3072). This animal was inoculated February 26th, 1907, with serum from a yaws tubercle in a native woman, the inoculation being made upon the abdomen and over the left eyebrow in the manner described.

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The serum used contained many examples of *Treponema pertenuis*. Upon March 8th after an incubation period of twenty days, a small crusted papule was noticed at the site of inoculation upon both the abdomen and the head. Both lesions enlarged, became covered with a typical crust, and the examinations which were made repeatedly, were always positive for *Treponema pertenuis*. This monkey did not stand close confinement well, became weaker and weaker and was chloroformed on March 18th, ten days after the appearance of the yaws lesion. At autopsy the viscera appeared normal but the cervical and inguinal glands were slightly enlarged. The yaws tubercle upon the abdomen measured 1 x ¾ cm., was considerably raised above the surrounding skin and covered with a yellowish crust. The lesion upon the head measured 1.5 x 1 cm., and was very typical of the yaws papilloma as seen in man. The pathological material was handed to Dr. H. T Marshall, Pathologist of the Bureau of Science, for examination.

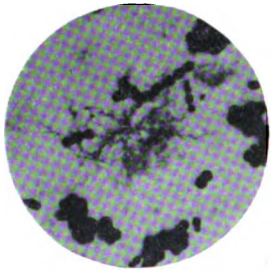

Fig. 6. T. pertenuis from capillary tube culture, showing agglutination and probable longitudinal division, x 1500 (about). Note comparative size of treponema and cocci.

Monkey No. 4. (3073) was inoculated February 26, 1907 upon the abdomen and over the left eyebrow in the manner described, with serum from a yaws tubercle in a native woman. Upon March 8th, twenty days after inoculation, a typical yaws papule developed at the site of vaccination upon the head. This lesion enlarged slightly, became covered with the characteristic crust, and the examination of the serum from the granulation tissue revealed upon the removal of the crusts showed the presence, repeatedly, of a few *Treponema pertenuis*. By April 16th the lesion had healed, the duration of the disease being about thirty-nine days. Upon May 15 this animal was inoculated upon the abdomen and right thigh with serum from a chancre showing many examples of *Treponema pallidum*. No results have been obtained from this experiment to date, June 30, 1907.

Monkey No. 5. (A). This animal was inoculated April 10th, 1907, upon the abdomen and right eyebrow, with serum from a yaws tubercle in a leper woman, the inoculation upon the head being subcutaneous, upon the abdomen by rubbing the serum into a slight abrasion. No lesion appeared upon this monkey until May 29th, when a well developed papule, about 1 cm. in diameter, and covered with a thick yellowish crust was observed. This lesion had evidently existed for several days, so that the incubation period is uncertain, probably between thirty-five and forty-five days. Upon removal of the crust the typical pink raspberry like growth was well marked and examination of the serum from the lesion demonstrated *Treponema pertenuis*. In this case the lesion enlarged but slightly and by June 12th had disappeared, the duration of the disease being about two weeks.

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Monkey No. 6. (3109). This monkey upon March 18th was inoculated by the subcutaneous pocket method upon the abdomen, and through an abrasion upon the forehead, with blood from the heart of Monkey No. 3, (3072), obtained at the time of the autopsy. No lesions have developed in this animal to date, June 30th, 1907.

Monkey No. 7. (3110). Was inoculated March 18th, 1907, in the same manner as monkey No. 6. (3109) with splenic juice from monkey No. 3, (3072) obtained at autopsy. No lesions have developed in this animal to date, June 30, 1907, but there is a marked enlargement of the inguinal lymphatic glands.

Monkey No. 8. (3111). Inoculated as above with serum from a yaws lesion upon head of Monkey No. 3 (3072) obtained at the time of autopsy March 18th. This animal was in a weakened condition from continued confinement at the time of inoculation and died upon April 6th, nineteen days after the inoculation. No lesions of yaws had appeared at the time of death and the autopsy did not show anything of interest beyond enlargement of the spleen, liver, kidneys, and lymphatics of the abdomen.

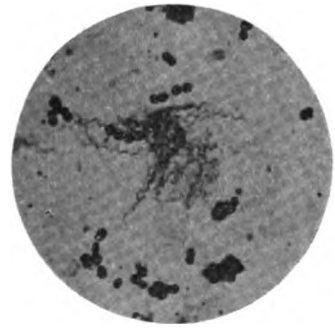

Fig. 7. T. pertenuis from capillary tube culture. showing agglutination and probable longitudinal division x 1500 (about). Note comparative size of treponema and cocci.

Monkey No. 9. (B). This animal was inoculated April 13, 1907, in the manner already described with yaws serum from a leper woman, the serum having been kept in a glass capillary tube for three days. No lesions have appeared in this monkey to date, June 30, 1907.

Monkey No. 10. (C). Inoculated through a subcutaneous pocket upon the abdomen May 15th, 1907, and through an abrasion upon the inside of left thigh, with serum from a chancre, showing very numerous examples of *Treponema pallidum*. No lesions have appeared to date, June 30, 1907.

Monkey No. 11. (D). Inoculated May 15, 1907 in the same manner as Monkey No. 10 (C) with serum from a chancre showing the presence of *Treponema pallidum*. No lesions have appeared in this monkey to date, June 30, 1907.

The two latter animals were used as controls to our inoculation of syphilis in yaws monkeys No. 1 (3070) and No. 4 (3073).

SUMMARY

The protocols given show that in all eleven monkeys have been used in our experimental work. Of these five were in-

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oculated directly with serum from human yaws lesions; one with serum from a human lesion, the serum having been kept in a glass capillary tube for three days; one with blood from the heart of a monkey that had developed yaws; one with splenic juice from the same monkey; one with serum from a yaws papilloma in a monkey and two with serum from a primary syphilitic lesion. In addition one monkey after recovery from yaws was re-inoculated with human yaws serum, and two after recovery were inoculated with syphilis. As regards results, of the five monkeys inoculated with yaws serum taken immediately from the human lesions all developed typical yaws tubercles, the animal inoculated with serum from a yaws lesion in a monkey died before the period of incubation, as shown by our experiments, had expired; the animal re-inoculated with yaws after recovery has developed no lesions. Lastly, in not one of the four monkeys inoculated with syphilis have any lesions developed.

PERIOD OF INCUBATION.

As will be seen upon referring to the protocols the period of incubation of yaws in the monkeys we experimented with varied from 16 to 35 or 45 days, but it should be understood that the period as given is only approximate, as owing to the distance and pressure of work, the animals were not inspected every day and thus the lesions may have existed a short time before they were noticed. However the limit of error in this respect is small and of no practical importance. The approximate period of incubation in our five successful inoculations was as follows:

Monkey No 1. (3070).....16 days.
" " 2. (3071).....20 " .
" " 3. (3072).....20 " .
" " 4. (3075).....20 " .
" " 5. (A) .....35 to 45 days.

In the case of monkey No 5 (A), the yaws lesion, when first noticed, was about the size of a small pea and had obviously been present for a number of days.

Comparing our results with those of Neisser, Baermann and

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Halberstadter (26), it is noticeable that in our monkeys the period of incubation was much shorter, as a rule, although the same low type of animal was used. Indeed the incubation period of yaws in *Cynomolgous philippinensis*, Geoffroy, approaches more nearly that of Gibbons as shown by the investigators mentioned. Thus in the lower types of monkeys used by them, the incubation period in five animals was found to be 22, 31, 65, 91 and 96 days respectively, while in only one of our five animals did the incubation period probably exceed 20 days. If we add to this result the probability that the lesions in all of our cases may have existed for a day or two before they were noticed, thus shortening the period of incubation still further, the difference in our results and those of the German commission becomes more noticeable. The regularity of the period of incubation in our animals is also worthy of notice, four of the animals developing the disease between the fifteenth and twentieth day after inoculation.

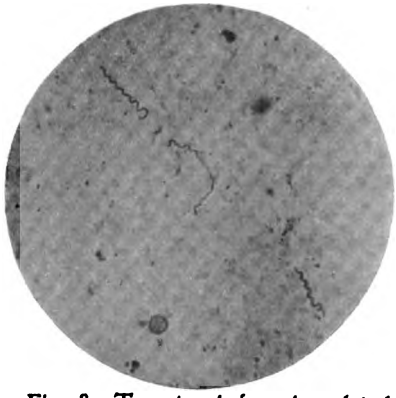

Fig. 8. T. pertenuis from inoculated yaws in monkey, x 1500 (about).

Duration of the Disease.—In the five monkeys in which we produced famboesia by inoculation the duration of the lesion was as follows:

Monkey No 1. (3070) .....84 days.
" " 2. (3071).....57 days.
" " 3. (3072)..... .....10 days.
(This animal was chloroformed while the lesions were still active.)
Monkey No. 4. (3073).....39 days.
" " 5. (A) .....14 to 21 days.

It was invariably our experience that in the more severe cases the primary lesion tended to spread into the surrounding skin, and the more marked this tendency was, the longer the disease lasted. We failed to observe any general glandular enlargement or any symptoms pointing to a general infection.

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THE LESIONS OF FRAMBOESIA AS OBSERVED IN MONKEYS.

The lesions produced by the experimental inoculation of framboesia in monkeys do not differ essentially, in their morphology, from those occurring in the disease in man, but we have never observed the secondary or generalized eruption, which, according to most authors, follows the primary lesion in the human subject. Neisser, Baermann and Halberstadter regard as secondary eruptions the extension of the infection from the site of the original lesion, and in one of our animals, Monkey No 1. (3070), such an extension occurred. However, we do not regard the new lesions so produced as a secondary eruption but simply as an invasion of the contiguous healthy tissue by the organism causing the disease, i. e., the treponema. Castellani appears to have secured true secondary lesions, situated at a distance from the original papule, in his one successful inoculation, and in this case a general infection might be supposed to exist.

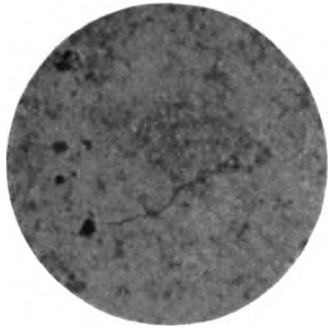

Fig. 9. T. pertenuis from inoculated yaws in monkey, x 1500 (about).

The evidence obtained from our experiments would appear to indicate that experimental framboesia in the monkey, at least in *Cynomolgous philippinensis*, Geoffroy, is a purely local infection that readily heals after a period of time varying from a few days to several weeks.

As we have stated, a few days after inoculation, the wounds so made had completely healed, although when the inoculation was made by means of a subcutaneous pocket a slight thickening about the site of inoculation persisted for a short time, finally disappearing before the appearance of the yaws papule.

In all of our animals the yaws lesion appeared at the site of inoculation and when first diagnosed consisted of a small papule, very slightly elevated above the surrounding skin, and covered by a yellowish cap or crust. In size the papules varied from that of a large pin head to a small pea. The epidermis had been

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replaced by the yellowish crust, which upon removal revealed a moist surface composed of minute, closely aggregated, but separate pinkish points, from which a thin, slightly milky fluid exuded.

The initial papule gradually enlarged, became in most instances elevated, and the crust, formed of the exuded serum, became thicker and more noticeable. The lesions were circular in shape and firm upon pressure. Even when fully developed they were not greatly elevated, as is so frequently the case in human yaws tubercules, and in only one of our animals did the lesion project markedly above the surrounding surface. While the crust covering the lesion always projected more or less, it would almost invariably be found upon its removal that the granulating surface was but slightly elevated, although very distinctly demarcated from the healthy skin surrounding it.

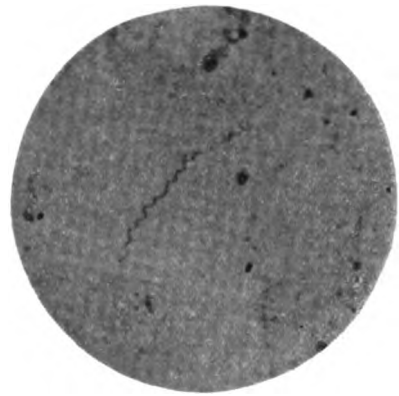

Fig. 10. T. pallidum from human syphilis, x 1500 (about).

The crust covering the fully developed yaws lesion, in the monkey was perfectly characteristic of that covering similar lesions in man, varying in thickness, easily removed, and yellowish or yellowish brown in color, sometimes streaked with reddish brown due to admixture with blood.

The surface of the fully developed yaws papule in the monkey, after the removal of the crust, was typical of that observed in human lesions. The color varied from a light pink to a bright red and a colorless or slightly whitish serum oozed from the raw surface which consisted of minute, closely aggregated papillae, situated upon a slightly raised base and surrounded by apparently healthy skin. In some of our animals the typical "raspberry" appearance so characteristic of human yaws tubercle was well illustrated. When fully developed the papules averaged

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1 cm. in diameter. In one of our animals, Monkey No. 1 (3070) the lesion both upon the head and the abdomen was typical of that variety of the disease described by Pierez (27), Scheube (28), Manson (29) and others as "ringworm yaws." The first lesion appeared upon the abdomen and presented the appearance already described. After a few days it was observed that in both the abdominal and head lesion, which had meanwhile appeared, healing was occurring at the center while the edges of the lesion were covered with an elevated crust. At this time the lesion resembled a ring worm infection so closely that we made an examination for the fungus with negative results.

The lesion upon the head, when fully developed, measured 2 cm. in diameter and consisted of a perfect ring of raised granlating tissue covered with the characteristic yellowish crust, and enclosing the original site of the yaws papule, which had healed without scar formation and but little pigmentation. Removal of the crust disclosed the usual moist pink surface and an examination of the serum exuding from it demonstrated the presence of *Treponema pertenuis* in large numbers. A slight extension of this lesion occurred in the form of a small characteristic papule developing at its lower portion and slightly involving the eyelid.

The abdominal lesion enlarged rapidly and for some time presented the appearance of a large yaws tubercle, markedly elevated and covered with a mammilated yellow crust. Healing began at the center of the tubercle and soon a typical "ringworm" appearance was assumed by the lesion but here a very considerable invasion of the surrounding skin occurred, new papules appeared at the periphery of the original lesion, so that eventually nearly one-half of the surface of the abdomen was involved in the process. The new lesions were easily demonstrated to be extensions in direct continuity with pre-existing lesions and sound skin was never found separating them while in the active stage.

The progress of these lesions answered perfectly to the so called secondary lesions described by Neisser, Baermann, and Halberstadter but, as we have stated, we cannot regard them as an

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evidence of a general infection and therefore as "secondary" in the sense in which the term is used in connection with syphilis.

After persisting for a varying period of time the lesions of framboesia heal in the same manner as those occurring in man, the hypertrophied papilla atrophy, the crust covering the papilloma shrivels up and falls off, and a slightly discolored but apparently sound area of skin, devoid of hair, marks the site of the lesion. After a few days the hair again grows and it becomes practically impossible to discover the site of the inoculation. As it is now nearly three months since our animals have recovered from the infection, and as we have seen no evidence of a generalized secondary eruption, we believe we are justified in asserting that in the species of monkey we used, a general eruption of yaws does not occur after experimental inoculation. While the lesions of framboesia are undoubtedly modified somewhat in the monkeys of the low type used in our work, they are yet so characteristic that we believe that from their appearance alone a clinical diagnosis could be made, even in the mildest case of infection that we observed, while in the more severe infections, such as Monkey No. 1 (3070), the nature of the lesion was apparent at a glance. It is probable that if higher species of apes were used the lesions would be much more pronounced and a generalized eruption of yaws tubercles might occur.

Fig. 11. T. pertenuis in degenerated area of epithelium of human yaws lesion. Levaditi method.

EXAMINATION FOR TREPONEMA PERTENUIS.

We have examined the lesions in all our successfully inoculated animals for *Treponema pertenuis* and have repeatedly demonstrated its presence in every case, without any special diffi-

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culty. The organism occurred usually in the very earliest stage of growth of the yaws papule and persisted until the lesion had nearly healed, being most numerous during the active growth of the papule and decreasing in number as the healing process advanced. As we have stated the treponema occurring in the lesions in monkeys did not differ in any particular from those found in the serum from the lesions in man. In most instances no other spirochaetae were observed in the preparation, although in one or two instances, organism corresponding to the type of *S. refringens* were observed, but these were very rare. As in man the lesions covered with crust showed the treponema unmixed with other spirochaetae, while in those in which the crust had been removed, as by scratching, thus allowing of secondary infectious, organisms corresponding to the types described by Castellani were infrequently observed.

Serum from the lesions in some of our inoculated animals was collected in capillary tubes and kept for varying periods of time. Apparent multiplication of *Treponema pertenuis* occurred in some of the tubes and the organisms remained motile for several days. In the serum from the tubes the organisms occurred singly, in pairs, or in clumps. Agglutination and apparent longitudinal division was also observed in the serum from the lesions in these animals.

We consider that the constant presence of *Treponema pertenuis* in the experimental lesions of yaws in monkeys, produced by the inoculation of serum containing them from the lesions in man, and their absence in other conditions, is conclusive proof of their etiological relationship to framboesia. If we add to this the fact that as the lesions heal the treponema gradually disappear and the further fact, as proven by the case of Monkey No 2 (3071), that the organisms can not be found in pyogenic ulcerations even when inoculated, unless framboesia be induced, it appears to us that the evidence is complete. *Treponema pertenuis* is found constantly and only in the lesions of framboesia whether such lesions be natural, as in human infection, or experimental, as in the infection of animals.

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Reinfection.—In only one instance [Monkey No. 2 (3071)] have we attempted to reinfect a monkey that had recovered from framboesia, and in this animal the re-inoculation of human yaws serum resulted negatively.

Inoculation from Monkey to Monkey.—In one instance [Monkey No. 3.(3111)] we attempted to inoculate a monkey with the serum from a well marked lesion occurring in another animal of the same species, but unfortunately the inoculated animal died in 19 days, before the probable period of incubation had expired. In view of the results of Neisser, Baermann and Halberstadter, who obtained only one successful result from the inoculation of seven monkeys with the serum of infected animals, it is obvious that no conclusions can be drawn from our single experiment.

Fig. 12. Example of yaws lesions as seen in Filipinos.

Inoculation of Blood and Splenic Pulp.—In order to determine whether framboesia, as observed in infected animals, was a

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general or local disease we inoculated one monkey [No. 6 (3109)] with blood from the heart of an animal infected with yaws, and another [No. 7 (3110)] with splenic pulp from the same animal. No results followed these inoculations but we do not consider that the experiments prove anything, as Neisser, Baermann and Halberstadter obtained only negative results in six monkeys inoculated with splenic pulp and with a mixture of splenic juice, bone marrow and mesenteric glands, and only one positive result in three animals inoculated with bone marrow. We did not try the inoculation of bone marrow but in view of the fact that of the nine animals inoculated by the investigators mentioned, the only positive result was obtained by the inoculation of this substance, we feel that our negative result with the blood and splenic pulp does not justify us in drawing a definite conclusion as to the production of the disease in this manner.

Inoculation of Yaws and Syphilis.—Both Castellani (30) and Neisser and his co-workers appear to have proven conclusively that monkeys which have recovered from yaws are susceptible to syphilis. We have endeavored to repeat their experiments but have failed to produce syphilis in either monkeys recovered from yaws or those that have never suffered from the disease.

As shown in the protocols of our experiments we inoculated two animals, Monkey No. 1 (3070) and Monkey No. 4 (3073), both of which had recovered from well marked yaws lesions, with serum from a chancre containing at the time of inoculation numerous examples of *Treponema pallidum*. As controls we inoculated two healthy animals with serum from the same case. At the present time, two months after inoculation, none of these monkeys have developed syphilitic lesions, and we are forced to the conclusion that it is extremely difficult, if not impossible, to inoculate syphilis in the species of monkeys used in our experiments. (*Cynomolgous philippinensis*, Geoffroy). This difficulty, compared with the ease with which framboesia is transmitted to the same species, speaks very strongly against the identity of the two diseases.

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Yaws and Syphilis.—As is well known the question of the relation of yaws and syphilis has always excited much controversy, and Hutchinson's theory, that yaws is the original form of syphilis, the latter disease, as we observe it to-day, being framboesia modified by passage through the Caucasian race, still has many supporters. The discovery of an organism in yaws lesion indistinguishable morphologically from *Treponema pallidum* at first sight appeared to lend additional evdence to the claim that yaws and syphilis are identical but the experimental evidence already at hand demonstrates that the lesions produced by *Treponema pertenuis* differ greatly from those produced by *Treponema pallidum*, and that infection with one of these organisms does not produce immunity against the other. *Treponema pertenuis* and *Treponema pallidum* are, therefore, distinct species, and the lesions produced by each are characteristic and easily distinguished clinically, in uncomplicated cases.

Fig. 13. Example of yaws lesions as seen in Filipinos.

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There is no room for doubt in our minds, after consulting the work of other authors and investigators, and our own clinical and experimental experience, that yaws and syphilis are distinct diseases, our belief being based upon the following facts:

a. The pleomorphism of the lesions of syphilis, the uniformity of those of yaws.

b. The granulomata (yaws papules) are the primary lesions of yaws; such lesions, if syphilitic, could only be *secondary* or *tertiary*.

Fig. 14. Examples of yaws lesions as seen in Filipinos.

c. The presence of the very peculiar and typical yellow cap, or crust, covering the yaws lesions.

d. In infected regions every uncomplicated case of yaws, whether in children or adults, presents the same characteristic lesion (the papule covered with a yellow crust). If the disease were syphilitic a wider variation in the type of the lesion would be observed.

e. The epidemic occurrence of yaws, especially among young children, and the greater prevalence of the disease in children.

f. The absence of genital infections in any case observed by us.

g. The absence in yaws of such striking symptoms as loss of hair and iritis.

h. The auto-inoculability of yaws even when a general eruption is present.

i. The ready inoculability of yaws into such a low type of monkey as *Cynomolgous philippinensis*, Geoffroy, and the nega-

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tive result of the inoculation of syphilis in this species of monkey.

j. The fact, as proven by Neisser, Baermann and Halberstadter, and Castellani, that monkeys susceptible to both yaws and syphilis can be infected with both, no immunity being conferred against the one by an attack of the other.

k. The fact, as proven by Charlouis (31) and Powell (32), that patients suffering from yaws can be infected with syphilis.

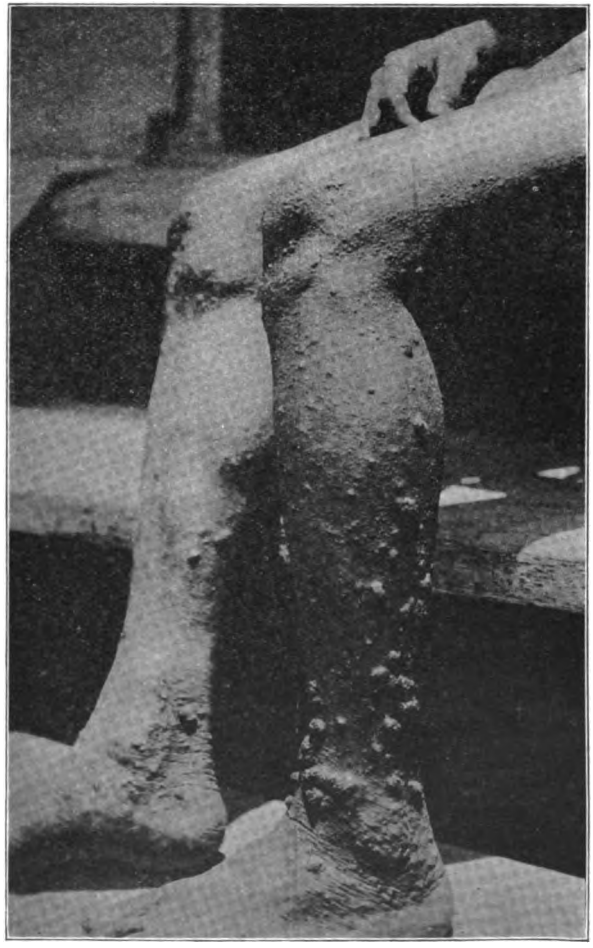

Fig. 15. Case of Yaws in Filipino.

GENERAL CONCLUSIONS.

As a result of our observations, both clinical and experimental, we believe that we are justified in drawing the following conclusions:

1. That *Treponema pertenuis* is the cause of yaws.

2. That *Treponema pertenuis* is constantly present in the serum from yaws lesions.

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3. That the variations in the morphology of *Treponema pertenuis* are explainable by the deformities produced during the preparation of the serum for examination.

4. That *Treponema pertenuis* and *Treponema pallidum* can be differentiated by the results obtained from the inoculation of monkeys.

5. That the inoculation of the serum from human yaws lesions containing *Treponema pertenuis* causes yaws in monkeys and that the organism can be easily demonstrated in the lesions of the infected animals.

6. That the length of the period of incubation in *Cynomolgous philippinensis*, Geoffroy, is approximately twenty days.

7. That the duration of the inoculated disease in this species of monkey varies from 21 to 84 days.

8. That yaws and syphilis are distinct diseases.

9. That *Treponema pertenuis* can be demonstrated in sections of yaws papillomata by the Levediti method.

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Contemporary Comment.

A NEW HEAT STROKE THEORY.

UNDER the subject of Military Medicine (*Deutsche Milit-aerztl. Ztsch.*) Dr. Hiller discusses Oberstabsarzt Dr. Senftleben's recent theory, of heat stroke which may be briefly stated as follows: In consequence of the continual perspiration of the soldiers on the march, the red blood corpuscles undergo dissolution. The hemoglobin of the red blood cells, dissolved in the blood plasma, destroys the white blood corpuscles, and liberates, from the protoplasm of the white cells, the fibrin ferment, which calls forth an active rise in temperature and coagulation of the blood, especially in the venous system, and by obstructing the pulmonary artery and its branches leads to death with lightning rapidity. The severity of the attacks of heat stroke depends upon the amount of fibrin ferment produced and the varied intensity of coagulation. The experimental support of Senftleben's theory are the experiments of Maas; "Influence of the rapid withdrawal of water from the organism," and three dissertations of Koehler, Sachsendahl, and Maissurianz; "Fibrin ferment and hemoglobin intoxication" from Schmidt's laboratory in Dorpat. Hiller made a thorough study of the investigations of Maas and the dissertations from Schmidt's laboratory and comes to a widely different conclusion. He cannot see how the perspiring of soldiers on the march can be compared to the withdrawal of water caused by exposing in a room of warm dry air the contents of the abdominal cavity of a narcotised rabbit, nor do the injections of a concentrated sugar solution into the peritoneal cavity of a rabbit or dog confirm Senftleben's theory to him. The experiments of Koehler, Sachsendahl and Maissurianz were made to explain blood transfusion. They found that dissolved hemoglobin, prepared from the blood of an animal, when injected in the jugular vein of the same or any other animal, lead to a rapid disintegration of the colorless blood cells and a sudden accumulation of a large amount of fibrin ferment, which caused

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coagulation of the venous blood in the lesser circulation and produced sudden death by asphyxiation. Since Senftleben's theory requires coagulation of the venous blood in the lesser circulation, then one should find clots in the pulmonary artery and its branches in a patient dead from heat stroke. No such findings have as yet been reported. Senftleben's explanation that the fibrin ferment has been used up does not explain the absence of a coagulm.—F. J. CONZELMANN.

PARA-TYPHOID.

IN the *Deutsche Militaerztl. Zeitsch.*, Oberarzt Sacks-Mueke reports an interesting case of para-typhoid, the history of which is as follows: Patient Z. complains on the morning of July 15, 1906, of a feeling of weakness and dizziness. Took to his bed. Severe abdominal pains, frequent vomiting and diarrhea later in the day. Admitted to hospital July 17. Physical condition poor. Eyes and cheeks sunken. Tongue dry and thickly coated. Pulse small and rapid, not dicrotic. Temperature 36.1. Forearm and legs ice cold. Heart and lungs regular. Scaphoid abdomen, sensitive to touch in the upper parts. Stools have a pea soup appearance. Mentally clear. July 18, pulse better. Vomiting of bile. Stools, pea soup appearance. July 19, stupor. Temperature still low. Albumin in urine. July 20, pulse 90. Albumin in urine. Marked typhoid state. Spleen enlarged. Para-typhoid bacilli in the blood. Widal negative. July 21 condition critical. Infusion of saline solution. Extremities warm. Temperature 35. 8. July 22, vomited. Mentally clear. General condition improved. Urine continued to contain albumin and not until July 27 did his temperature rise to 37. 0. During the last few days a measly eruption occurred over the whole body. No other signs of measles. Desquamation followed a few days later. August 31, Widal for typhoid negative, for para-typhoid positive. Urine cloudy, contains albumin and para-typhoid bacilli, no typhoid bacilli. No typhoid or para-typhoid bacilli could be found in the stools. September 21, patient went to duty. The case shows many of the clinical symptoms which Leutz considers characteristic for para-typhoid, as vomiting, enlargement of the spleen, rapid agglutination in a 1-250 dilution and the skin eruption. The subnormal temperature suggests cholera. The case demonstrates the importance of making a bacteriological examination of the blood.—FRED J. CONZELMANN.

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Medico-Military Index.

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Editorial Expression.

ADVANTAGES OF ESPERANTO IN MILITARY MEDICAL SERVICE.

IN connection with the recent detail of Major P. F. Straub, Medical Corps, U.S. Army, to attend the Esperanto Congress at Dresden, Germany, August 16-22, we may make a few comments on the *internacia helpatingoo*.

During the months of February, March, April, and May the writer made the voyage from Manila, P.I., to the United States, visiting, en route, Straits Settlements, Ceylon, Aden, Egypt, Malta, Gibraltar, Spain, France, Switzerland, Germany, and England, and everywhere found that he might have gotten along, linguistically, by the aid of Esperanto alone. In all of the countries and places mentioned he found Esperantists, and most enthusiastic they are. Many of these were medical men, and they all testified to the great benefit which Esperanto is to them, especially now that we have a medical gazette, *bocho de Kuracistoj*, printed in Esperanto at Lwow, Austria-Gallicia.

In the United States the writer found Esperanto had not spread as it has in most other countries, but the official recognition by our Government of the language will attract widespread attention to it. To two of its great advantages we would call especial attention.

Firstly: By means of translations into Esperanto, the world's literature may be made accessible to all, at, comparatively speaking, a modicum of cost. Think what this means to medical and all other scientific men.

Secondly: As a basis for the acquirement of other foreign languages, it can not be over estimated, for the word-meanings are so precise, and the grammar so logical, that its study affords an

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insight into language and grammar which few obtain, even through most arduous study.

Esperantists have founded and maintain in Geneva, Switzerland, an International Scientific Bureau, under the charge of that most competent and accomplished man and scientist, Dr. René de Saussure, where are being compiled lists of scientific words and phrases in Esperanto, which will soon be published. These *vortaroi* cover every branch of science and human knowledge, and are most complete. Think of the great advantage to the world were all names of objects and things to be alike in all languages.

Esperanto literature, and full information about the language, may be obtained from the following named persons or institutions:

Fleming H. Revell Co., 158 Fifth Ave., New York.
Centra Esperanta Oficejo, 51 rue de Clichy, Paris.
Internacia Scienca Oficejo, 8 rue Bory Lysberg, Geneva, Switzerland.
American Esperanto Association, Boston, Mass.
The following periodicals, out of many, are recommended.
Internacia Scienca Revuo. 8 rue Bory Lysberg, Geneva, Switzerland.
Vocho de Kuracistoj, Lwow, Austria-Gallicia.
La Revuo (literary), chez Hachette et cie., Paris.
Ira la Mondo, Pundon (S. et O.) France.
Amerika Esperantisto, Chicago, Ill.—H. W. YEMANS.

SEPTIC INTOXICATION FROM MEAT DIET.

THE article of our esteemed friend, Dr. W. F. Waugh, in our last issue, is pretty exhaustive. Yet we can infer from it an argument which he does not suspect, and which would not be admitted by a carnivore dyed in the wool and brought up to the manners. The argument is afforded by the illustration he pricks from a "cold" through a Christmas or Thanksgiving dinner. If one repast conveys to the alimentary

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canal such a huge mass of nitrogenous matter, injurious to the body, how much more must a habit be dangerous which is liable to lead to excess every day, nay, three times a day?

Vegetarianism has an occasion to exclaim with Wallenstein, "The Lord protect me from my friends; of my enemies I will take care myself." It has made itself ridiculous by its esthetical extravagance, its butcher's shop horror leads to the fantastic ultimatum of East Indian lice culture, for fear of killing an animal. But that does not make carnivorism good; meat-diet is only one degree removed from cannibalism; there is in nature a progressing and a retrogressing metamorphosis, and a climax of the progressive metamorphosis is in the meat-fiber. Thence decomposition sets in. Therefore the carnivore eats more his like than the vegetarian, the vegetarian in avoiding meat aliment, gives to nature something to work over, and this creates better, firmer, tissue than the fiber formed by the meat fiber. And this holds more forcibly owing to the indulgence in condiments, the depravation of taste, and the temptation to overeat oneself. As a matter of fact, moreover, there is in a carnivore population less resistance against epidemics than in vegetarians, and there is in vegetables a less quick decomposition than in meat-flesh, and a less horrible putrefaction. Successful bacterial cultures are made in broth, not of vegetable infusion. We know of an institution, a bridewell, of two hundred inmates, in which vegetarianism was strictly observed; two days in the year only meat was given, and the state of health was most exemplary. Vegetable nitrogen shares in all the good qualities of animal nitrogen, without sharing in its bad qualities. For twenty-nine years the writer has observed vegetarianism, and does not miss the meat fiber in his hygiene.

Among the military a trial should be made. It is merely a matter of habit. What with good Graham bread, the taste is reformed in six months. As has been said before, carnivorism is only one degree removed from cannibalism.—C. A. F. LINDORME.

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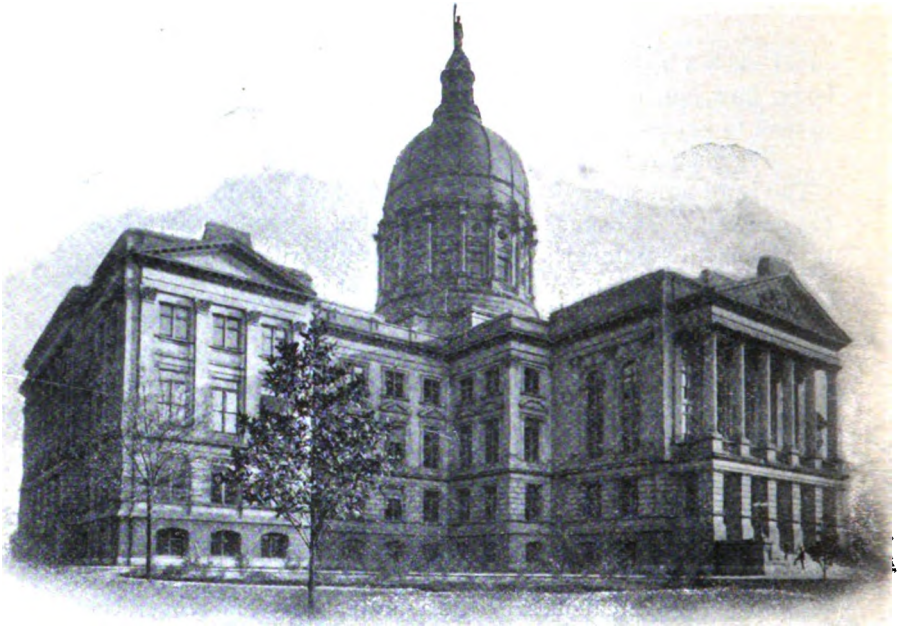

Georgia State Capitol.

The Atlanta Meeting.

PRELIMINARY PROGRAM OF THE SEVENTEENTH ANNUAL MEETING OF THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES.

THE prospects for the Seventeenth Annual Meeting of the Association of Military Surgeons of the United States are particularly alluring. Atlanta is famous for its effective entertainment of conventions. The military element is strong in Georgia and the presence at its capital of the headquarters of the Army Department of the Gulf, with the great post of Fort McPherson on its borders, adds still more to its appropriateness as a location for the meeting of a military society.

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The state government, headed by the commander-in-chief of the Georgia National Guard, with his staff, will afford an additional element of attractiveness. The month of October is a particularly agreeable season in Georgia and the environments of the meeting cannot but prove a delightful setting to a most interesting occasion. The military, naval, and marine-hospital surgeons of the United States have continued in active professional work during the year and a program will be presented bringing out many of the more important features of the army, navy and public health medical work.

The meetings will be held in the Assembly Room of the magnificent Piedmont Hotel, which will also be the social headquarters of the meeting, so that all of the sessions of the convention will be held under one roof, an advantage which experience has shown to be very great.

Among the papers which will be presented at the meeting are the following:

Suture of Wounds of the Heart. By Assistant Surgeon General George Tully Vaughan, P.H.&M.H.S.

The President's annual address.

The Development and Maintenance of a Militia Hospital Corps. By Captain J. Carlisle DeVries, N.G.N.Y.

A National Guard Practice March. By Major Buell S. Rogers, Illinois N.G.

A Plea for Specialism. By Captian Edward B. Vedder, U.S.A.

The necessity of specializing is pointed out, both from the point of view of obtaining the best results in army medical practice, and in case original work or research is carried on, the desirability of the latter and a brief plan for providing for specialists in the Medical Corps.

A Simple Method of Transporting Drugs, Surgical Instruments, and Dressings into the Field for a Few Day's March. By Lieutenant Harold G. Goldberg, N.G.Pa.

A Mexican Litter Especially Adapted to Transportation from the First Line to the Dressing Station. By Lieutenant Colonel Alejandro Ross, Mexican Army.

A description of a litter devised by a Mexican army surgeon who calls it "the Mexican Wheeler Stretcher."

Sanitary Service in the Field. By Colonel H. Nimier, French Army.

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The Situation of the Medical Corps in the Austrian Army. By Major George E. Bushnell, U.S.A.

Sanitary Service of the Swiss Army. By Captain Louis C. Duncan, U.S.A.

North Pryor Street in Atlanta.

The New Sanitary Regulations of the Swedish Army. By Captain Robert L. Richards, U.S.A.

The Sanitary Service in the Third Japanese Army, the Besieging Army at Port Arthur. By Captain Edward B. Vedder, U.S.A.

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The Steel Frame in the Transportation of the Disabled. By Colonel C. de Mooy, Retired, Netherlands Army.

A description of the author's adaptation of steel to the formation of litters for transportation of the disabled in military service.

Some Recent Scandinavian Military Medical Literature. By Major Hans Daae, Norwegian Army.

An interesting review of the subject by the editor of the *Norsktidsskrift for Militar Medecin.*

The Medical Log of the U.S.S. *Virginia* on the Cruise to the Pacific. By Surgeon Charles Henry Tilgham Lowndes, U.S.N.

Atlanta Dental College.

Reason for the article; general description of the *Virginia*; the cruise, the health of the ship; a few practical conclusions.

Sanatorium Management. By Surgeon Paul M. Carrington, P.H.&M.H.S.

A description of the routine at Fort Stanton, New Mexico.

The Remote Effects of Exposure to the Direct Rays of the Sun. By Lieutenant Colonel Edward Champe Carter, U.S.A.

Change of Climate not Essential in Treatment of Pulmonary Tuberculosis. By Former Acting Assistant Surgeon Melville A. Hays, U.S.A.

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Pulmonary tuberculosis can be treated successfully at sea level as well as in high altitudes. Essentials of treatment are plentiful supply of *fresh* air, good, nourishing food, and medicinal treatment to meet indications. Synopsis of cases showing results in treatment of cases in a variety of altitudes from sea level to 2,000 feet above sea level.

A Plea for the Early Diagnosis of Pulmonary Tuberculosis. By Surgeon Barton Lisle Wright, U.S.N.

Our fundamental dependence on the early diagnosis of pulmonary tuberculosis and the widespread failure to recognize or neglect to accord full import to the physical signs of the incipient stage of the disease. Cases in illustration are presented and a plea is made for better training in and more attention to physical diagnosis, to the end that phthisis may be brought under treatment more often before microscopical confirmation is available.

Researches upon the Cultivation of the Plasmodia of Malaria. By Captain Charles F. Craig, U.S.A.

The paper gives the results obtained in attempts to cultivate the malaria plasmodia upon hitherto untried culture media which have been used successfully in cultivating other protozoan organisms.

Public Health and Military Medical Department of the United States. By Surgeon Lloyd W. Curtis, U.S.N.

The object of this paper is to suggest to the Association a tentative plan for the creation of a comprehensive national health organization, which shall embrace the Medical Departments of the Army, Navy, and Public Health and Marine Hospital Service, having as its official head a physician and sanitarian of national reputation, who would be a cabinet officer. The paper will attempt to show some of the advantages such an organization would possess in dealing with the public health in its federal relations, by fixing responsibility and authority in the hands of a personnel trained for the purpose and no other. Should the subject of this paper prove of stimulating interest to the Association a suitable medal might (and would) be offered for competing essays, the subject of which should deal with the practical development and organization of such a department of the federal government.

Camp Sanitation. By Major Thomas J. Kirkpatrick, U.S.A.

Gives résumé of recent literature bearing on the subject, more especially the part played by the contagion and "bacillus carriers" in spread of typhoid fever, and new prophylatic measures suggested by these advances in knowledge of the subject.

The Disposal of All Liquid Refuse of the Otis Excavators and of the Sanitary Carts in a Maneuver Camp, by Evaporation on Heated Rocks. By Major Henry I. Raymond, U.S.A.

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An ideal sanitary encampment leaves nothing to mark its site, underground or above, except a monumental mound of ashes with which the falling rains will enrich the earth. The scheme involves no innovation as to mechanical devices, but simply the adaptation of a primitive and well-known earth and masonry construction to a new end. Principles of construction and operation of a pit for evaporation of liquid in the field as evolved through observation and experiment at the Maneuver Camp, Leon Springs Reservation, Texas. "If any one can recommend a method for the disposal

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of liquid waste in a camp where the subsoil is a closely packed clay, he will confer a lasting blessing, etc." (Major Ferrel, *Journal of the Association of Military Surgeons*, July, 1906).

Favus as Observed in the Inspection of Immigrants. By Surgeon J. B. Stoner, P.H.&M.H.S.

Don't Swallow the Enemy, Don't Touch the Enemy, Don't Breathe the Enemy. By Captain Frank T. Woodbury, U.S.A.

A simply worded manual designed for the use of officers and soldiers of the line and containing much of interest upon the subjects considered.

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The Administration of a Plague Campaign. By Passed Assistant Surgeon Rupert Blue, P.H.&M.H.S., Commanding plague supressive measures in San Francisco, Cal.

The Executive Work of a Plague Campaign. By Passed Assistant Surgeon W. C. Rucker, P.H.&M.H.S., Executive Officer plague suppressive measures in San Francisco, Cal.

The Flea and Its Relation to Plague, with a synopsis of the Rat Fleas. By Passed Assistant Surgeon Carroll Fox, P.H & M.H.S., Pathologist plague suppressive measures, San Francisco, Cal.

The Clinical and Post Mortem Diagnosis of Plague. By Passed Assistant Surgeon Carroll Fox, P.H.&M.H.S.

The Examination of Rats and the Practical Bacteriology of Plague. By Passed Assistant Surgeon G. W. McCoy, P.H.& M.H.S., Bacteriologist plague suppressive measures, San Francisco, Cal.

Rat Destruction. By Passed Assistant Surgeon C. W. Vogel, P.H.&M.H.S., Commanding the 5th Provisional Plague District, San Francisco, Cal.

Practical Rat-Proofing as an Anti-Plague Measure. By Passed Assistant Surgeon R. H. Creel, Commanding 6th Provisional Plague District, San Francisco, Cal.

The Conduct of an Anti-Plague District. By Assistant Surgeon J. R. Hurley, P.H.&M.H.S., Commanding 11th Provisional Plague District, San Francisco, Cal.

Method of Making Sanitary Surveys in a Plague Campaign. By Acting Assistant Surgeon C. H. Woolsey, P.H.&M.H.S., Commanding 3rd Provisional Plague District, San Francisco, Cal.

Cleaning and Disinfection as Plague Suppressive Measures. By Acting Assistant Surgeon G. M. Converse, P.H.&M.H.S., Commanding 1st Provisional Plague District, San Francisco, Cal.

District Organization. By Acting Assistant Surgeon L. S. Schmitt, P.H.&M.H.S., Commanding 4th Provisional Plague District, San Francisco, Cal.

Medical versus Surgical Treatment of Amebic Dysentery. By Passed Assistant Surgeon John Milton Holt, P.H.&M.H.S.

Consideration of this relatively new disease can not be too frequent, for a time, at least. Published accounts of alleged cures by internal medi-

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cation often fail to mention how long thereafter *ameba coli* were absent from stools, and whether microscopical examination was systematically made to determine the presence or absence of *ameba*. After some of these apparent recoveries, subsequent attacks have been reported concerning which it has been said that perhaps they *might* have been new infections. It is believed medical treatment should be limited to the acute cases, and when the cases become chronic, they are exclusively surgical.

Disease,—A Conservative Instrument of Nature. By Surgeon P. C. Kalloch, P.H.&M.H.S.

The writer undertakes to frame a hypothesis which may account for the occurrence of disease in man and the hypothesis offered presents the

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following factors: (1) That disease attacks only persons who are either permanently or temporarily enfeebled and that the tendency in such cases is their removal as active members of the race. (2) That susceptibility to disease depends upon the infraction of natural laws. (3) That such infraction consists in the neglect of certain functions or their performance under unnatural circumstances. (4) That the remedy lies in the instruction of the public as to the proper apportionment of time to the different functions and as to the importance of living under sanitary or natural laws.

Battleship Neurasthenia (?). By Surgeon Sheldon Guthrie Evans, U.S.N.

A simple plea for the recognition of the intestinal origin of neurasthenia and outlining a successful plan of treatment.

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Perforation of the Intestines in Typhoid Fever—A Brief Review with a Report of Three Cases. By Passed Assistant Surgeon C. H. Lavinder, P.H.&M.H.S.

Tropical Diseases in the Philippines. By Captain James M. Phalen, U.S.A., and Lieutenant Henry J. Nichols, U.S.A.

A report upon the work of the board for research upon tropical diseases in the Philippine Islands.

Iron-Aristol for Chronic Skin Ulcers. By Passed Assistant Surgeon M. J. White, P.H.&M.H.S.

The Sanguinary Assault by United States forces upon the Moros at Bud-Dajo, Island of Jolo, P.I., as Observed by the

Entrance to Fort McPherson, near Atlanta, Ga.

Surgeon. Illustrated by Maps and Weapons. By Major Charles B. Ewing, U.S.A.

Cocaine, Its Relations to the Military Surgeon. By Passed Assistant Surgeon William Dunlop Owens, U.S.N.

Necessity for laws regulating the sale of cocaine. The environment of a military organization and its relation to cocaine. Certain attractive advantages which cocaine offers to a possible military habitue. The effects, agreeable and otherwise. The malignant type when taken in poisonous doses. Two frequent conditions which have come under observation. The different state laws relating to the sale of cocaine. Massachusetts' more advanced law. Note.

Hypodermic Anesthesia (Historical). By Former Acting Assistant Surgeon William Thomas Thackeray, U.S.A.

A paper, the title to be announced. By Colonel William C. Gorgas, U.S.A.

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News of the Services.

Acting Assistant Surgeon G. H. Altree, P.H.&M.H.S., granted two months leave without pay.

Lieutenant E. H. Anderson, U.S.A., ordered to Fort Wingate.

Assistant Surgeon F. A. Ashford, P.H.&M.H.S., ordered before the San Juan Promotion Board.

Assistant Surgeon S. Bacon, U.S.N., ordered from the New Fort Lyon Naval Hospital to the *South Dakota*.

Surgeon C. E. Banks, P.H.&M.H.S., granted twenty days leave.

Passed Assistant Surgeon L. P. H. Bahrenburg, P.H.&M.H.S., ordered to Point Pleasant, N. J., to examine keepers and surfmen of the Life-Saving Service and return to Ellis Island, N. Y.

Acting Assistant Surgeon W. O. Baird, P.H.&M.H.S., granted sixteen days leave.

Lieutenant R. C. Bayly, U.S.A., ordered to Fort D. A. Russell, thence to Camp Emmett Crawford.

Medical Inspector C. Biddle, U.S.N., ordered home from the Philadelphia Marine Recruiting Station and granted two months leave.

Lieutenant Colonel H. P. Birmingham, U.S.A., appointed member of the medical examining board vice Colonel Charles B. Byrne.

Assistant Surgeon L. W. Bishop, U.S.N., ordered from the Indianapolis Naval Recruiting Station to the New York Naval Hospital for treatment and observation.

Captain Robert M. Blanchard, U.S.A., granted twenty instead of ten days leave.

Passed Assistant Surgeon Rupert Blue, P.H.&M.H.S., appointed a member of the San Francisco Revenue-Cutter Service Retiring Board.

Captain James Bourke, U.S.A., ordered from Fort Leavenworth to camp near Fort Riley.

Medical Director J. C. Boyd, U.S.N., ordered from command of the Naval Medical School Hospital to continue duty as president of the Naval and Medical Examining Boards at that school.

Major Thomas S. Bratton, U.S.A., ordered with troops from Fort Des Moines to camp near Fort Riley.

Assistant Surgeon H. Butts, U.S.N., ordered from the Cavite Naval Station to the Canacao Naval Hospital.

Surgeon D. N. Carpenter, U.S.N., ordered from the Cavite Naval Station home to wait orders.

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Surgeon P. M. Carrington, P.H.&M.H.S., granted sixteen days sick leave, and appointed delegate to the meeting of the International Congress on Tuberculosis.

Major W. Fitzhugh Carter, U.S.A., granted one month's leave.

Assistant Surgeon A. L. Chilton, U.S.N., ordered to the Philadelphia Naval Hospital.

Passed Assistant Surgeon Taliaferro Clark, P.H.&M.H.S., ordered to Lebanon, Pa., for special temporary duty and return to Philadelphia, Pa.

Acting Assistant Surgeon F. H. Cleaves, P.H. & M.H.S., granted twelve days leave.

Assistant Surgeon A. L. Clifton, U.S.N., commissioned from July 15, 1908.

Surgeon J. O. Cobb, P.H. & M.H.S., ordered to Chicago, Ill., for special temporary duty and return to Milwaukee, Wis.

Assistant Surgeon I. F. Cohn, U.S.N., ordered to the Mare Island Naval Hospital.

Assistant Surgeon H. W. Cole, Jr., U.S.N., ordered to the Charleston Navy Yard.

Captain George H. Crabtree, U.S.A., granted fifty-four days leave from Ancon, Canal Zone.

Assistant Surgeon G. B. Crow, U.S.N., commissioned from July 15, 1908, and ordered to the Norfolk Naval Hospital.

Lieutenant W. R. Dear, U.S.A., ordered to the Washington General Hospital.

Captain William A. Duncan, U.S.A., granted fifteen days leave.

Acting Assistant Surgeon James Dunn, P.H. & M.H.S., granted one month's leave.

Assistant Surgeon H. G. Ebert, P.H.&M.H.S., ordered from special temporary duty at San Francisco to the San Francisco Quarantine Station.

Passed Assistant Surgeon W. G. Farwell, U.S.N., ordered from Camp Ellicott, Isthmus of Panama to the Philadelphia Naval Recruiting Station.

Lieutenant Herbert L. Freeland, U.S.A., ordered to Camp Emmett Crawford; granted twenty days leave about October 1.

Colonel Joseph B. Girard, U.S.A., appointed delegate to the Fifth Pan-American Medical Congress at Guatemala.

Acting Assistant Surgeon C. M. Gleason, P.H.&M.H.S., granted twenty days leave.

Assistant Surgeon General A. H. Glennan, P.H.&M.H.S., granted twenty-eight days leave.

Passed Assistant Surgeon J. Goldberger, P. H. & M. H. S., appointed delegate to the meeting of the International Fishery Congress, Washington, D. C.

Medical Director G. E. H. Harmon, U.S.N., ordered to command the Naval Medical School Hospital.

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Lieutenant Herbert I. Harris, U.S.A., granted sixteen days leave.

Major H. S. T. Harris, U.S.A., granted ten days extension of leave, and ordered before the Medical Examining Board for examination for promotion.

Colonel Valery Havard, U.S.A., appointed president of the medical examining board vice Colonel Charles B. Byrne.

Assistant Surgeon A. B. Haywood, U.S.N., ordered from Camp Ellicott, Isthmian Canal Zone, Panama, to the Pittsburg Naval Recruiting Station.

Assistant Surgeon H. R. Hermesch, U.S.N., ordered from the Cincinnati Naval Recruiting Station to the *California*.

Captain James D. Heysinger, U.S.A., granted fourteen days leave.

Acting Assistant Surgeon B. I. Hicks, P. H. & M. H. S., granted twenty-three days leave.

Lieutenant Eben C. Hill, U.S.A., ordered to Fort Porter.

Passed Assistant Surgeon W. S. Hoen, U.S.N., ordered from treatment at the Mare Island Naval Hospital to the Bureau of Medicine and Surgery for further orders.

Acting Assistant Surgeon M. W. Houghton, P. H. & M. H. S., granted fifteen days leave.

Captain Park Howell, U.S.A., ordered from the Fort Leavenworth Military Prison to the Fort Bayard General Hospital.

Lieutenant Edward G. Huber, U.S.A., ordered from Chickamauga Park to Fort Riley.

Major R. W. Johnson, U.S.A., granted one month's leave in the United States.

Assistant Surgeon H. L. Kelly, U.S.N., ordered from the Canacao Naval Hospital to the Cavite Naval Station.

Major William P. Kendall, U.S.A., ordered from Fort Ethan Allen to Fort Ontario for temporary duty, and then before the Medical Examining Board for examination for promotion.

Acting Assistant Surgeon S. R. Kennedy, P.H.&M.H.S., granted one month's leave.

Lieutenant Edgar King, U.S.A., ordered from the Philippines to San Francisco.

Passed Assistant Surgeon W. W. King, P.H.&M.H.S., appointed a member of the San Francisco Revenue-Cutter Service Retiring Board.

Major Thomas J. Kirkpatrick, U.S.A., granted one month's leave.

Captain C. E. Koerper, U.S.A., granted twenty-seven days leave from Cuba with permission to visit the United States.

Lieutenant John S. Lambie, Jr., U.S.A., ordered from Chickamauga Park to Fort Riley.

Captain James I. Mabee, U.S.A., ordered from the *Sherman* to Jefferson Barracks; granted two months leave.

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Acting Assistant Surgeon R. H. McGinnis, P.H.&M.H.S., granted fifteen days leave; leave revoked.

Assistant Surgeon L. W. McGuire, U.S.N., ordered from the Charleston Navy Yard to the *Montana*.

Surgeon W. P McIntosh, P.H.&M.H.S., granted one month's leave.

Assistant Surgeon F. H. McKeon, P.H.&M.H.S., ordered before the Manila Promotion Board.

Acting Assistant Surgeon W. L. Mann, Jr., U.S.N., ordered to the Newport Naval Hospital.

Assistant Surgeon H. M. Manning, P.H.&M.H.S., ordered to the Hygienic Laboratory for temporary duty.

Major Charles F. Mason, U.S.A., appointed delegate to the meeting of the American Public Health Association, Winnepeg, Manitoba, Canada.

Surgeon F. W. Mead, P.H.&M.H.S., ordered to Tuckerton and Atlantic City, N. J., to examine keepers and surfmen of the Life-Saving Service and return to Savannah, Ga., and granted one month's leave.

Assistant Surgeon J. M. Minter, U.S.N., ordered from the Mare Island Naval Hospital to the Cincinnati Naval Recruiting Station.

Captain William H. Moncrief, U.S.A., granted two months leave with permission to apply for one month's extension.

Major Edward R. Morris, U.S.A., ordered before the Medical Examining Board for examination for promotion.

Surgeon L. Morris, U.S.N., ordered from the Newport Naval Torpedo Station to the Cavite Naval Station.

Lieutenant Armin Mueller, U.S.A., ordered from Milwaukee, Wis., to Jefferson Barracks.

Acting Assistant Surgeon A. J. Nute, P.H.&M.H.S., granted sixteen days leave.

Captain Fred W. Palmer, U.S.A., ordered from the Fort Bayard General Hospital to Fort Benjamin Harrison.

Passed Assistant Surgeon H. B. Parker, P.H.&M.H.S., granted one month's leave.

Passed Assistant Surgeon J. H. Payne, U.S.N., ordered from the Boston Navy Yard to the *Salem*.

Passed Assistant Surgeon A. E. Peck, U.S.N., ordered to the Newport Naval Torpedo Station.

Assistant Surgeon General W. J. Pettus, P.H.&M.H.S., granted one month and fifteen days leave with permission to go beyond the sea.

Assistant Surgeon Joseph Pettyjohn, P.H.&M.H.S., ordered before the Manila Promotion Board.

Assistant Surgeon J. R. Phelps, U.S.N., commissioned from July 15, 1908.

Major Henry I. Raymond, U.S.A., ordered before the Medical Examining Board for examination for promotion.

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Dr. James Reagles, U.S.A., granted twenty days sick leave.

Captain Charles R. Reynolds, U.S.A., ordered from Chickamauga Park to Fort Riley.

Assistant Surgeon G. C. Rhoades, U.S.N., ordered from the *Franklin* to the *Scorpion*.

Surgeon General Presley M. Rixey, U.S N., has returned from a western tour of inspection. He will, in a few weeks, make a visit of inspection to Newport, where land has been secured for a new hospital and the site and plans for the new building are to be worked out with a view to beginning construction early in the fall. The hospitals to be built at Boston and Portsmouth will be the next to be taken up.

Assistant Surgeon T. W. Salmon, P.H.&M.H.S., ordered before the Washington Promotion Board.

Acting Assistant Surgeon Walter L. Savage, P.H.&M.H.S., granted one month's leave.

Passed Assistant Surgeon J. W. Schereschewsky, P.H.&M.H.S., ordered to Ocean City, Md., and Chincoteague, Wachapreague, and Cape Charles City, Va., to examine keepers and surfmen of the Life-Saving Service and return to Baltimore, Md.

Captain George H. Scott, U.S.A., granted one month's leave.

Acting Assistant Surgeon L. T. Seavey, P.H.&M.H.S., granted twenty-one days leave.

Major Henry A. Shaw, U.S.A., granted one month's leave.

Assistant Surgeon G. W. Shepard, U.S.N., ordered from the Mare Island Naval Hospital to the Naval Medical School for instruction.

Acting Assistant Surgeon A. E. Spohn, P.H.&M.H.S., granted one month's leave and one month's leave without pay.

Assistant Surgeon R. D. Spratt, P.H.&M.H.S., ordered before the Washington Promotion Board.

Assistant Surgeon P. R. Stalnaker, U.S.N., ordered to the Annapolis Naval Hospital.

Captain Chester J. Stedman, U.S.A., granted three months leave.

Passed Assistant Surgeon A. M. Stimson, P.H.&M.H.S., granted one month and fifteen days leave.

Major John H. Stone, U.S.A., ordered from Newport News to the Fort Leavenworth Military Prison.

Assistant Surgeon G. E. Strite, U.S.N., ordered from the *Franklin* to the Norfolk Naval Hospital.

Assistant Surgeon D. G. Sutton, U.S.N., ordered from the Newport Naval Hospital to the *Franklin*.

Assistant Surgeon E. A. Sweet, P.H.&M.H.S., ordered before the San Francisco Promotion Board, and granted two months leave.

Lieutenant Frank Suggs, U.S.A., ordered from Fort Niagara to Fort Washington for temporary duty.

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Acting Assistant Surgeon J. W. Tappan, P.H.&M.H.S., granted twenty days leave.

Acting Assistant Surgeon B. C. Tarbell, P.H&M.H.S., granted one month's leave without pay.

Passed Assistant Surgeon J. W. Trask, P.H.&M.H.S., granted twenty-seven days leave.

Lieutenant George Trotter-Tyler, U.S.A., ordered from Fort Adams to Fort Monroe for temporary duty.

Assistant Surgeon H. W. B. Turner, U.S.N., appointed July 20, 1908.

Acting Assistant Surgeon Jay Tuttle, P.H.&M.H.S., granted one month's leave.

Surgeon J. F. Urie, U.S.N., retired August 1, 1908, and ordered home when discharged from treatment at the Mare Island Naval Hospital.

Acting Assistant Surgeon P. Villodo, P.H.&M.H.S., ordered to Cienfuegos, Cuba, for temporary duty and return to Havana.

Passed Assistant Surgeon C. W. Vogel, P.H.&M.H.S., ordered from special temporary duty at San Juan, P. R., to Washington, D. C.

Acting Assistant Surgeon H. C. Wakefield, P.H.&M.H.S., granted twelve days leave.

Surgeon Eugene Wasdin, P.H.&M.H.S., granted one month's leave.

Acting Assistant Surgeon W. A. Weldon, P.H.&M.H.S., granted one month's leave.

Surgeon C. P. Wertenbaker, P.H.&M.H.S., ordered to Wachapreague and Cape Charles City, Va., to examine keepers and surfmen of the Life-Saving Service, and granted one month's leave.

Passed Assistant Surgeon H. W. Wickes, P.H.&M.H.S., ordered to the Brunswick Quarantine Station for special temporary duty and return to station.

Captain William A. Wickline, U.S.A., ordered to accompany troops from Leon Springs, Texas, to Camp Emmett Crawford.

Captain Frank T. Woodbury, U.S.A., ordered to Fort Assinniboine upon expiration of leave.

Surgeon R. M. Woodward, P.H.&M.H.S., granted thirteen days leave.

SCREENS AT ARMY POSTS.—An allotment of $40,000.00 has been made for screening buildings at army posts and camps in the Philippine Archipelago. Installation will begin at the hospitals, quarters and barracks coming later.

DENGUE A MOSQUITO BORNE DISEASE.—The Medical Department in the Philippines after patient investigation has come to the conclusion that dengue fever is carried by mosquitoes and is not contagious. Recommendation has been made to Washington that anti-mosquito measures be adopted at Fort William McKinley, P. I., where the fever was prevalent some

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months ago, and wherever else there is danger of an outbreak of the disease.

THE UNIFORM OF THE ARMY MEDICAL RESERVE CORPS.—General Orders No. 123 from the War Department prescribes that the uniform for officers of the Medical Reserve Corps will be the same as that prescribed for officers of the Medical Corps, except the insignia, which will be the caduceus of gold or gilt, superimposed in the center by a monogram of dull finish bronze, bearing the letters "R. C.", five-eighths (⅝) of an inch high, for the full dress, dress, and white coats. For the service coat and overcoat, the caduceus will be of dull finish bronze metal, superimposed in the center by the monogram in gold or gilt.

NEW ARMY SHOES.—An improved Army shoe will be tried at Fort Sheridan, Ill., to which post have been sent seventy-five pairs of new russet shoes and a like number of black dress shoes, consisting of a full set of sizes and widths. A board of officers will be convened at Fort Sheridan to have these shoes tried by members of the garrison under the observation, also, of the chief shoe inspector from Boston. The board will criticise the shoes and make suggestions of changes. The russet shoe embodies improvements which have been recommended hitherto, the tops being not so high as the old shoe and there being fewer lacing holes and those of large size. The russet shoe is on the orthopedic last, while the the black shoe is on the standard commercial last.

THE NEXT SURGEON GENERAL OF THE ARMY.—In view of the fact that Surgeon General O'Reilly of the Army must be retired by age in January next, considerable agitation has already begun in official circles as to his successor. Among the Colonels of the Army Medical Department may be found material of the very highest character, so that the President's selection need not be embarrassed by the lack of a suitable man. Among those mentioned are Colonel Valery Havard, President of the Army Medical School; Colonel John Van Rensselaer Hoff, Chief Surgeon of the Philippines; Colonel Louis M. Maus, Chief Surgeon of the Department of the Luzon; Colonel George H. Torney, Commandant of the Presidio General Hospital; and Colonel William C. Gorgas, of the Isthmian Canal Commission.

TESTIMONIAL TO GENERAL STERNBERG.—In recognition of his eminent services to the public a complimentary banquet was tendered to General George M. Sternberg, U.S.A., a member of the Executive Council of the Association of Military Surgeons, by the medical profession and citizens of Washington, D. C., June 8, the occasion being the celebration of his seventieth birthday. Honorable John W. Foster presided. Addresses were delivered by Major Walter D. McCaw, U.S.A., on "Sternberg, the Medical Officer;" Dr. George M. Kober, on "Sternberg, the Scientist and Author;" Mr. Justice David J. Brewer, on "Sternberg, the Philanthropist;" Commissioner Henry B. F. MacFarland, on "Sternberg, the Cit-

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izen;" and Honorable Simon Wolf, on "Our Guest," while a beautiful silver cup was presented to General Sternberg as a permanent memorial of the occasion.

MILITARY SURGEONS IN THE FIRST RANK OF ESPERANTISTOJ.—The military surgeons of the United States are forging ahead in their interest and work for the international language, which they believe will do an immense amount of good for the science of medicine as well as for commercialism and universal peace.

At the First American Esperanto Congress, recently held at Chautauqua, N. Y., Major Walker, Surgeon U.S A., was one of the leaders, and little Miss Winifred Sackville Stoner, Jr., daughter of Lieutenant-Colonel J. B. Stoner, Surgeon P.H.&M.H.S., was the youngest Esperantist holding a diploma from the International Esperanto Institute for being able to read, write and converse in the wonderful tongue. Little Miss Stoner is but five years of age, but having heard her father and mother talking Esperanto for the past year she could not help imbibing it. Dr. Stoner is now busy trying to bring his brother officers into the fold of "universal peacedom," and hopes to organize The P.H.&M.H.S. Esperanto Association.

PROMOTION OF ARMY MEDICAL FIELD OFFICERS.—The terms of the recently enacted statute for the reorganization of the Medical Corps have been complied with in the case of the majors of the corps who failed to pass the examination for promotion to the grade of lieutenant colonel. The law provides that in the matter of the physical examination the officer who fails may ask for a second examination, but in no other respect can he have a second trial on failure. He may, however, ask for the appointment of a board of review to go over the conditions of the examination and report whether in the judgement of the board any injustice has been done the candidate for promotion. Three majors who have not passed for promotion to the higher grade will remain majors until the expiration of their service. All are regarded as capable surgeons and officers who have a good record of service to their credit; but a light estimate of the requirements of the examination and the unexpected stiffness of the test to which they were put no doubt caught them off their guard. One of the severest parts of the test was an administration problem for which several days of the time allotted was given, and it is understood that it was this feature of the examination that proved the stumbling stone over which the officers in question fell down. Nothing short of the compassion of Congress in special legislation can come to their relief, and they are destined to remain on the list of majors, while other officers in their grade will be examined, and as they demonstrate their fitness for advancement will be promoted. The incident has caused no little commotion in the Medical Corps. A second list of majors for examination for promotion has been made up. This was made necessary by the fact that the three officers who were ordered before a board in June failed to pass mentally. It is expected that with the example

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of those who failed before them the second draft of candidates will contain no causalties. The conditions with reference to promotion from Captain to Major and from Lieutenant to Captain are that the candidate who fails after the results of the examination have been confirmed by a board of review shall be honorably discharged with a year's pay. This has been done with one officer who failed in his examinaiion for promotion from Lieutenant to Captain.

OFFICERS OF THE ARMY MEDICAL RESERVE CORPS.—The following former Contract Surgeons of the Army have been appointed Lieutenants in the new Medical Reserve Corps and assigned to duty at their former stations: G. F. Adair, E. A. Anderson, William M. Archer, Frank E. Artaud, J. K. Ashburn, L. P. Ball, F. M. Barney, Joseph E. Bastion, Edmund W. Bayley, H. C. Bierbower, I. W. Brewer, I. C. Brown, P. D. Brown, W. E. Brown, G. F. Campbell, D. P. Card, A. M. Chase, C. L. Chase, G. R. Clayton, Albion McD. Coffey, Harold L. Coffin, F. J. Conzelmann, G. W. Cook, C. W. Cullen, W. O. Cutliffe, Waller H. Dade, O. F. Davis, George W. Daywalt, S. C. DeKrafft, A. C. Delacroix, W. F. de Niedmann, Luis G. de Quevedo, Clarence F. Dickenson, P. G. Drake, C. T. Dulin, L. R. Dunbar, H. W. Eliot, W. F. Enders, J. A. Escobar, E. J. Farrow, H. L. Freeland, L. C. Garcia, W. R. S. George, L. K. Graves, F. C. Griffis, W. C. Griswold, Frederick Hadra, W. E. Hall, C. H. Halliday, F. A. Halliday, J. W. Hard, D. W. Harmon, H. I. Harris, W. L. Hart, H. E. Hasseltine, O. F. Henning, J. R. Hereford, John M. Hewitt, David D. Hogan, T. G. Holmes, Alva R. Hull, Leonard S. Hughes, M. E. Hughes, T. W. Jackson, A. R. Jarrett, F. E. Jenkins, C. W. Johnson, E. K. Johnstone, E. C. Jones, G. B. Jones, Edward H. Jordan, P. S. Kellogg, John P. Kelly, J. S. Kennedy, H. Newton Kierulff, Clarence C. Kress, J. F. Leeper, J. C. LeHardy, Robert Lemmon, Henry F. Lincoln, J.W. Love, Thomas S. Lowe, F. M. McCallum, D. P. McCord, C. E. McDonald, H. C. McLeod, Clemens W. McMillan, S. B. McPheeters, J. C. Magee, M. F. Marvin, J. N. Merrick, A. L. Miller, F. H. Mills, J. R. Mount, W. H. Myers, S. F. O'Day, Wallace, E. Parkman, J. B. Pascoe, E. W. Patterson, L. B. Peck, Henry duR. Phelan, Joseph Pinquard, Elias H. Porter, Howard Priest, James Reagles, G. H. Henderson, E. E. Roberts, W. E. Sabin, J. L. Sanford, J. M. Shepherd, R. E. Sievers, E. F. Slater, J. T. H. Slayter, R. D. Smith, W. H. Smith, F. H. Sparrenberger, S. A. Springwater, G. P. Stallman, C. H. Sterns, A. V. Stephenson, J. K. Stockard, H. W. Stuckey, Frank Suggs, E. S. Tenney, C. A. Tetrault, J. I. Thorne, C. A. Treuholtz, George Trotter-Tyler, Jesse P. Truax, W. H. Tukey, A. D. Tuttle, George B. Tuttle, G. T. Tyler, Henry H. Van Kirk, T. C. Walker, F. M. Wall, George S. Wallace, Benjamin B. Warriner, V. E. Watkins, C. I. Wertenbaker, H. R. Weston, J. M. Wheate, Walter Whitney, D. C. Wiggin, Elsworth Wilson, H. C. Woolley, R. J. Wren, H. W. Yemans.

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Current Literature.

KELLY'S MEDICAL GYNECOLOGY.*

THIS is a work which appeals particularly to the general practitioner, and practically all American military medical officers are of this class. The comparatively limited amount of gynecological practice which pushes on to the terrain of the military medical officer renders a work of consultation, so thorough, so exact and so complete as the present book, an adjuvant of the highest value. There is no part of medical gynecology which Dr. Kelly has failed to discuss most intelligently and luminously. To especially mention any one subject where all are so well treated would be an invidious discrimination. All of the progress made during the quarter of a century, during which gynecology has arisen from obscurity to prominence, finds its place in this essentially modern text-book.

BANDLER'S MEDICAL GYNECOLOGY.†

THE frequent occurrence of simultaneous recognition of facts and the conditions of the medical profession as manifested by the almost simultaneous production of works upon the same subject is well marked in connection with medical gynecology. The work of Dr. Kelly which we notice above is followed almost directly by this notable work of Dr. Bandler. It is an outgrowth of the author's clinical lectures in the New York Post-Graduate School, and is consequently eminently practical in character. The arrangement of the book is good and its teachings are conservative and yet progressive.

*Medical Gynecology.—By HOWARD A. KELLY, M.D. 8 vo; pp. 662, with 163 illustrations. New York and London, D. Appleton & Co., 1908. Cloth $6.00.

†Medical Gynecology. By S. WILLIS BANDLER, M. D. 8vo; pp. 675, with 135 illustrations. Philadelphia and London, W. B. Saunders Co., 1908. Cloth $5.00 net.

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VOL. XXIII, No. 4. OCTOBER, 1908.

THE MILITARY SURGEON

Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS EXPRESSED IN THEIR CONTRIBUTIONS.

THE INDIVIDUAL FIRST AID PACKETS OF THE PRINCIPAL ARMIES OF THE WORLD.

BY MAJOR ED. LAVAL,

SURGEON IN THE FRENCH ARMY.

TRANSLATED BY CAPTAIN CHARLES S. BUTLER,

ASSISTANT SURGEON IN THE MASSACHUSETTS VOLUNTEER MILITIA.

THE subject of the individual first aid packet has taken on new importance within the past few years. Our former ideas have given place to new ones; at first, the contents of the packet being *antiseptic*, no care was taken about the handling which the dressing was subjected to; it seemed enough to enclose in compact form two compresses on the one hand, and a bandage with two safety-pins on the other, for fastening.

Since *asepsis* has come to be the chief aim in surgery, the object has been to put together first aid packets whose contents should need the least handling in the application of the dressing; on account of which several methods more or less ingenious have appeared, making it possible to unfold and

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to apply the compresses to the wound without touching them with the hands. At the same time, it is most important to make the dressing *aseptic*. But, asepsis being a quality easily lost if its protection is not perfect and constant, we are obliged, on account of circumstances to put the dressing in a soldered metal box.

As the accompanying table shows, the packets of the several armies differ considerably. To take up their study according to the principal characters—

Fig. 1. The Austrian First Aid Packet.
Natural size 2 1/8 by 2 7/8 inches.

Shape.—Except the Dutch and the Italian, which are nearly square, the packets have an oblong shape, which seems a more advantageous arrangement for the contents, as well as for carrying in a pocket of the clothing.

Size.—The largest are the Belgian and the Roumanian, which are respectively 13 by 9.5 cm., and 12 by 7 cm. The smallest is the Italian 6 cm. square. It is of interest to note that the new Swiss packets of 1906 and those of the United States, 1906, are sizes halfway between these extremes. They are both about 10 cm. long by a little more than half that wide; or 6.5 cm. for the former and 5.7 cm. for the latter.

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FIRST AID PACKETS OF THE PRINCIPAL ARMIES.

	Shape	Dimensions in centimeters			Weight in grms.	Covering	Contents
		Length	Width	Thickness			
1. Germany.	Oblong	7	5	2.5	25	Gray waterproof cloth	1 gauze bandage 1 gauze pad *Antiseptic with corrosive*
2. Austria.	Almost square	7.3	6.5	2.5	40	Gray cloth wrapper	2 packets: 1st packet—1 gauze compress 2nd packet—1 cotton bandage *Antiseptic*
3. Belgium.	Oblong	13	9.5	2 to 3	57	Gray cloth with tight stitch	1 gauze compress 1 triangular bandage *Antiseptic with corrosive*
4. Spain.	Oblong	11	7.5	2 to 3	72	Gray cloth cover	1 gauze bandage 2 compresses of wadding and gauze 1 triangular bandage 2 safety pins
5. United States	Oblong with rounded corners	10	5.7	2.2	130	Brown metal box	2 sets, each made up of one compress sewed to the middle of a bandage, having two ends *Aseptic*
6. France.	Oblong	11	8	2	43	Gray cloth cover	1 gauze and tow compress 1 gauze compress one bandage, —2 safety pins *Antiseptic with corrosive*
7. Holland.	Oblong, but divided in two parts, nearly square	10	4	1.5	40	Gray wrapping cloth	2 dressings, each made up of a gauze bandage, with a gauze and wadding compress attached to the middle which spreads out on opening the packet *Aseptic*
8. Italy.	Square	6	6	2	30	Bag of waterproof cloth	2 rolls, of which one is made up of 2 gauze compresses placed one on the other, and rolled up together; the other is only the bandage 2 ordinary pins *Antiseptic with corrosive*
9. Japan.	Oblong	9	6	3	67	Khaki colored cloth	1 triangular bandage 2 gauze compresses, one safety pin
10. Norway.	Oblong	8.5	5	2	21	Gray cloth wrapper	2 gauze compresses 1 bandage rolled flat 1 safety pin *Antiseptic*
11. Roumania.	Oblong	12	7	2¾	48	Yellowish-gray waterproofed cloth	2 compresses 2 safety pins 1 bandage 1 diagnosis tag 1 roller
12. Russia.	Oblong	9.5	5.5	2.5	48	Bluish-gray cloth	2 free gauze compresses with absorbent cotton 1 lacquered safety pin *Antiseptic with corrosive*
13. Sweden.	Oblong	8.5	6.2	2.5	31	Water-proofed gummed cloth	2 sets of compresses with wadding 1 bandage, rolled flat *Antiseptic*
14. Switzerland.	Oblong with rounded corners	10.5	6.5	2	100	Bright tin box, flat, shaped like a cigar box	2 compresses of wadding covered with gauze and impregnated with vioform 1 bandage: 1 triangular bandage *Aseptic-antiseptic*

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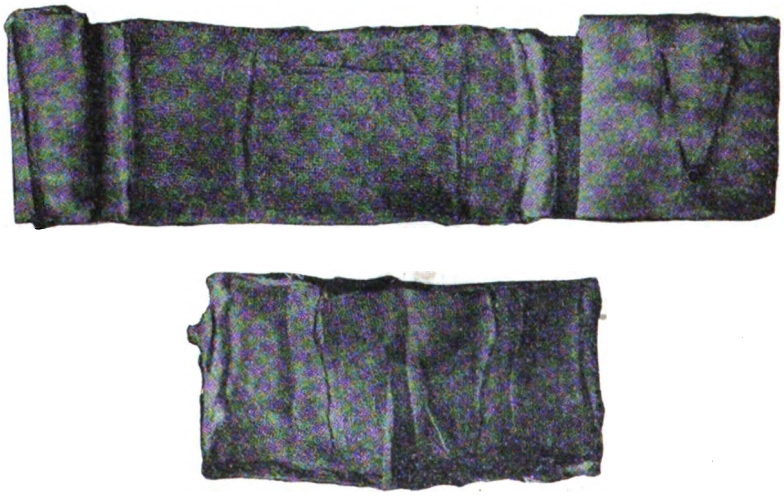
The thickness is from 2 to 3 cm., more usually 2. This is as much projection as packets can stand in a soldier's pocket without being troublesome .

Weight.—The old packets are light enough; the lightest in weight is the Norwegian, which weighs only twenty-one grams. On the other hand, the heaviest are the Swiss, 100 grams, and that of the United States, 130 grams, both of which weights are easily understood when we take account of the metal case.



Figs. 2 and 3. Elements of the Austrian Packet in Reduced Proportion.

Covering.—In general, the dressing itself is covered with a water-proof paper, then further covered with a water-proof cloth or not, kept closed either by a string, so completing the whole, for example the Dutch; or tied on all sides, as in the German; or by sewing together the edges, as in the French, Spanish and Belgian; or by other joining together of the edges of the water-proof covering, as in the Roumanian. To open the packets, it is only necessary to cut the string or to pull on the thread, or to tear apart the edges of the covering, according to the conditions.

With the new packets in metal cases, however, made by the apposition of two hollowed halves, it is only necessary to pull on

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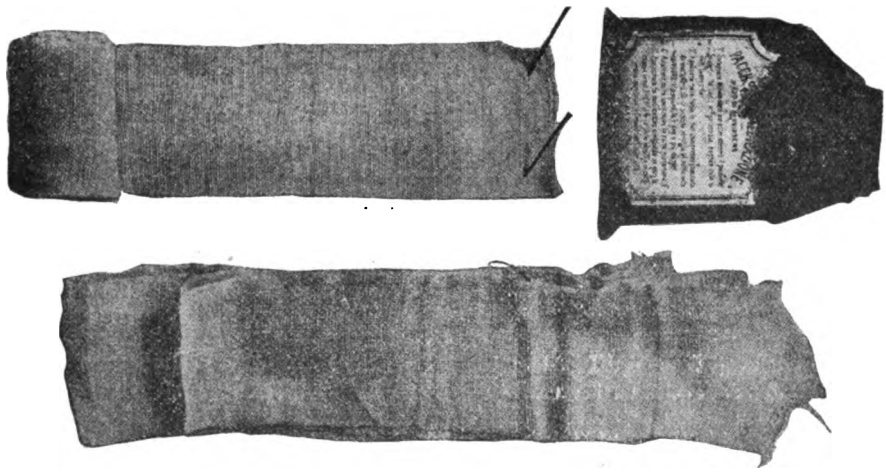
a ring which draws apart a soldered band, this making the whole of the fastening.

Contents.—The old model packets contained one or two compresses enclosed in a water-proof paper, with one bandage rolled separately or one sling, and one or more pins; for example Spanish, Norwegian, Belgian, Roumanian, and Swedish. But the more recent models comprise a bandage to which is attached one or two compresses; in a word, the dressing and bandage are in one piece. In the case of several countries, Germany and Austria for example, the compress is sewed along the bandage, *at one extremity*. In the United States model, the compress is sewed on, but at the middle of the bandage, which be-

PACCHETTO DI MEDICAZIONE
MODO DI SERVIRSENE
1° Strappare questa carta per poter estrarre il pacchetto
2° Svolgere la carta pergamenata, avendo cura di non lacerarla
3° Applicare sulla ferita le due compresse (ciascuna
di met 0,40-0,30 di mussolo idrofilo al sublimato
corrosivo, ripiegandole a due o più doppi
4° Adattare sulle compresse la carta pergamenata
5° Assicurare la medicatura svolgendo in giro la
fascia (met 3 - 0,05) di cambrik idrofilo al subli-
mato corrosivo, e fissandone l'estremità
finale con uno spillo

Fig. 4. The Italian First Aid Packet.
Natural size 2 5/8 by 3 inches.



Figs. 5, 6 and 7. Elements of the Italian Packet in Reduced Proportion.

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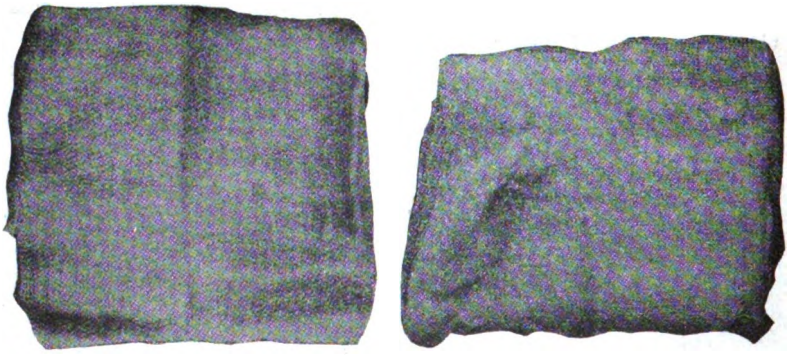
comes a divided bandage with two free ends. Finally, in Holland the method, patented under the name* of Utermöhlen consists in this that the compress, sewed to the middle of the bandage making two portions is folded several times on itself and therefore as it were automatically unfolds.

Fig. 8. The Norwegian First Aid Packet.
Natural size 3 1/2 by 2 inches.



Figs. 9 and 10. Compresses of the Norwegian Packet in Reduced Proportion.

Fig. 11. Cotton Bandage of the Norwegian Packet in Reduced Proportion.

*After M. Utermöhlen, who originated it.

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From these last packets, safety-pins have disappeared, a fortunate simplification.

Fig. 12. The Roumanian First Aid Packet.
Natural size 5 by 2 3/4 inches.

Sterilization.—A large number of the packets, in fact, the majority, are rendered *antiseptic* with corrosive sublimate.

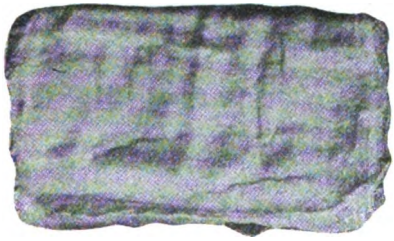

Fig. 13. Roumanian Compress Reduced.

Fig. 14. Diagnosis Tag of the Roumanian Packet Reduced.

Some are made *aseptic*, as the Dutch, by steam under pressure. Finally, some, as the Swiss, are made aseptic, as well as antiseptic with vioform.

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Method of Application.—If we omit from consideration the old models, where first, the compress is put on the wound, then the bandage, to consider only the recent models, where compress and bandage are in one piece, we shall see that there are two

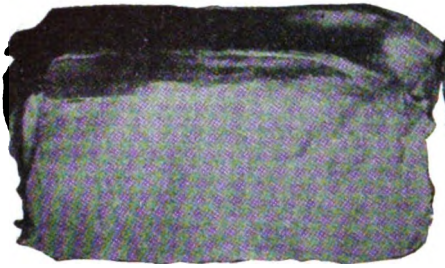

Fig. 15. Roumanian Compress Reduced.

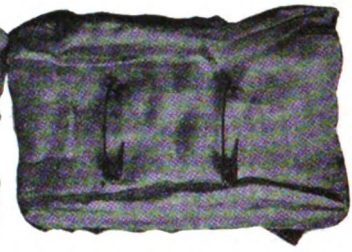

Fig. 16. Bandage of the Roumanian Packet Reduced.

methods of application according to whether the compress is attached to one extremity or to the middle of the bandage.

In the first case, the soldier, applying the dressing, unrolls the first few centimeters of the bandage near the compress, ap-

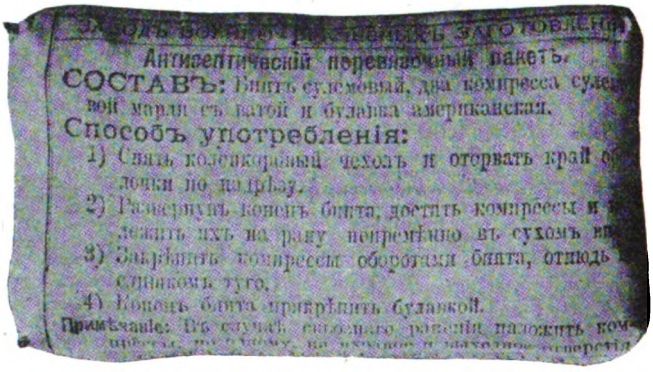

Fig. 17. The Russian First Aid Packet.
Natural size 4 by 2 1/2 inches.

plies the compress to the wound and then continues to unroll the rest of the bandage round about the compress. But we may criticize this method in that it exposes the wound to the risk of infection by the fingers because the end of the bandage next the

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compress must have been touched by the fingers in the application.

Much more satisfactory however, is the practice in the first aid packet of the United States or of Holland, where the soldier

Fig. 18. Compresses and Bandage of the Russian Packet in Reduced Proportion.

takes in each hand one of the two parts of the bandage in one set, spreads the hands apart and the compress is thus opened; it only remains to wind the bandage about the wound, without having so much as touched the compress. The superiority of the Dutch packet consists in this, that although of small size, and with a rather narrow bandage, the compress can be spread over a considerable area, thanks to a most ingenious manner of folding, and so can

Fig. 19. The Swedish First Aid Packet.
Natural size 3 1/2 by 2 3/4 inches.

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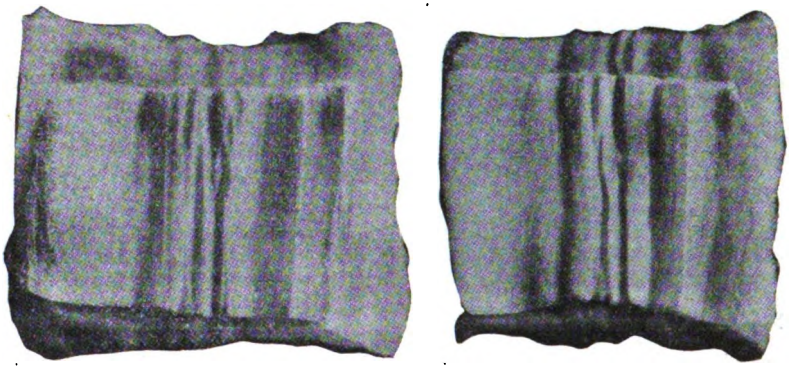
cover an extensive wound. The ends of the bandages are tied over the dressing, making pins unnecessary.

Several countries, as Germany and Austria, have only one compress in their packets; this however seems to us insufficient.



Figs. 20 and 21. Compresses of the Swedish Packet in Reduced Proportion.

It is truly said that then it would be sufficient to supply the men with two packets; but this is impracticable. It is necessary that each packet should have two sets of bandage-compresses.

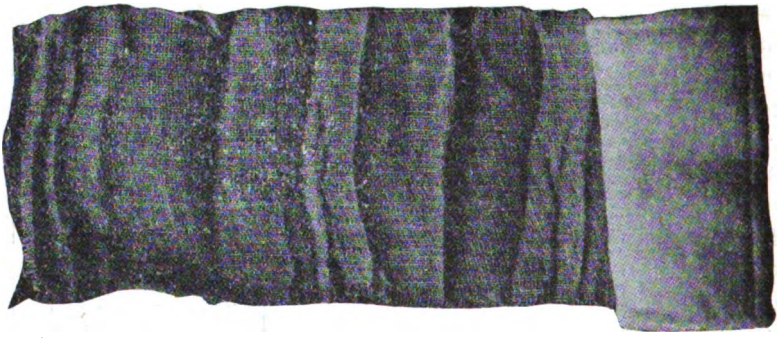


Fig. 22. Bandage of the Swedish Packet in Reduced Proportion.

Position for the first aid Packet.—In all armies the packet is carried in a coat pocket, or in an inside pocket. The United States, however, has inaugurated a new model, provided with two hooks, allowing the men to carry it on their belt.

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Is this an advisable change? It seems certain that this is advantageous in showing the soldiers that they should consider the first aid packet just as useful as other parts of their lesser equipment. But these other objects are already so many that we may ask ourselves whether it seems wise to add to the impedimenta. In any case, the model which we have examined has two rather weak hooks, badly fastened. It is to be presumed, however, that some modifications will be introduced.

CONCLUSIONS.

The ideal first aid packet, meeting the exigencies of the surgery of the battlefield, seems to have been realized, in great measure, in the model adopted by the United States. The metal case seems necessary but we should prefer it aluminum, because the two halves make a dead weight which should be reduced as much as possible.

The contents should be made up of two sets of bandage, with compress fixed to the middle of the bandage. But we criticize the bandage in the United States packet as being too wide:* five to six cm. would be quite enough.

Of course, no pins.†

The contents should be both aseptic and antiseptic.

Finally, it seems best to us to continue to carry the packet in some pocket of the soldier's uniform.

TREATMENT OF GUNSHOT WOUNDS OF THE ABDOMEN.

IN a contribution to the last German Surgical Congress, von Oettingen remarks that, theoretically, no abdominal wound from a modern bullet should be primarily laparotomized, with exception of those cases presenting signs of continued hemorrhage into the abdominal cavity. Conservative treatment is indicated.

*The United States 1906 model has bandage about 9.5 cm. wide.

†The United States 1906 model (Bauer and Black) has four safety pins.

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FACTS ABOUT THE ARMY CANTEEN.

By DR. ANITA NEWCOMB McGEE,

FORMERLY ACTING ASSISTANT SURGEON IN THE UNITED STATES ARMY.

EARLY in 1907 I was asked to take an active interest in the restoration of the army canteen. With the intention of so doing, I went to the War Department to obtain official facts and reports on the subject. I spent many days in examining these documents, and, finally, to my very great surprise, I was obliged to change completely my former opinion, for I became convinced by the evidence furnished by the army itself that the results of the abolition of the canteen had, on the whole, been good. The most important facts which I discovered were the following:

1. *There has been somewhat less drunkenness in the army since the canteen was abolished than there was in the years when it flourished.*

The facts are shown primarily by the reports of the Surgeon General on the number of cases admitted to hospital for Alcoholism per thousand of strength. These admissions are practical proof of the extent to which drunkenness prevails in the army, and their comparison from year to year enables one to reach conclusions which are impossible when memory alone is relied upon. In Munson's Military Hygiene are given figures prior to 1897 which show the following:

The percentage of admissions of the whole army in 1870 was 38.20, from which it rose to 58.10 in 1874 and to 68 in 1875. (An enormous increase, the cause of which I have not inquired into). Then it dropped by steps to 57.60 in 1881, rising next year again to 68.70. From that time until 1898 there was a steady fall in this percentage, showing some influence at work throughout the whole army. The canteen (which word I use throughout in its popular restriction to the beer-drinking feature

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only), was officially established February 1, 1889, but I understand that it was already in operation at some posts before that, while it did not begin at others until later. The following are the figures for each year from 1887 to 1907:

1887	46.70	1897	27.80
1888	40.20	1898	15.95
1889	41.40	1899	18.35
1890	40.70	1900	22.43
1891	40.00	1901	26.25
1892	37.20	1902	24.44
1893	33.80	1903	26.72
1894	30.90	1904	25.42
1895	30.10	1905	30.22
1896	28.80	1906	32.27

For 1897, and later, figures are quoted from the Surgeon General's Report for 1897 (page 52).

These figures relate to the whole army in the United States proper, thus eliminating the small difference due to conditions outside of the United States which did not obtain before the Spanish War. From this we see—(a) great fluctuations prior to establishment of canteen; (b) a steady fall, beginning with the years before the canteen was established, but commonly considered to be the effect thereof; (c) an abrupt fall in 1898 followed by a rise during the re-establishment of peace conditions; (d) a sudden stop to the rise and a practical level for four years following the abolition of the canteen, during which time it did not reach even the lowest figure before the Spanish War; (e) a rise in 1905 and 1906, coming too long after February 1, 1901 to be attributed to a law passed on that date; (f) the average of the nine canteen years prior to the Spanish War is 34.52; the average of the six non-canteen years is 27.72.

In making this most important comparison, I eliminate the war-years, because it is self-evident that the canteen had nothing whatever to do with the conditions obtaining then and the abrupt fall in alcoholism in 1898. Herein lies the source of most of the errors on this subject, and even in the report of the Chief of Staff for 1907 (page 19), he speaks of the canteen period as the years 1891 to 1900, thus giving to the canteen all the credit

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of the war conditions in his comparisons. (I could learn nothing at the War Department about the details of comparisons, etc., referred to by the Chief of Staff).

The chart in which the above figures are put in diagrammatic form, on page 52 of the report of the Surgeon General of the Army for 1906 and same page of report for 1907, shows very clearly that normal conditions were not re-established until 1901, though the figure then and for some time afterward was, as above stated, lower than any of the canteen years previous to the Spanish War. To what should be attributed the relatively small rise of 1905 and 1906 cannot be stated without a thorough investigation, though what follows throws some light on it.

II. *The difference in amount of Alcoholism during the canteen years (before 1898) and that during the post canteen years is so slight as to show in conjunction with other facts that the presence or absence of the canteen has a decidedly minor effect on drunkenness in comparison with other influences.*

Among the tables in the Surgeon General's reports is one showing "Most Important Diseases by Arms of Service." The following figures are taken from these tables:

ALKOHOLISMUS.

	1903	1904	1905	1906
Infantry	25.92	24.94	30.15	30.15
Cavalry	14.17	16.17	16.06	16.06
Coast Artillery	42.58	42.62	46.52	46.52
Field Artillery	11.89	9.43	10.53	10.53
Whole Army	24.69	27.61	29.65	31.22

It is beyond all question that the causes which produce forty-six cases of Alcoholism per thousand in one arm of the service when an allied arm has only ten cases, must be most powerful and these differences throw into insignificance the trifling fluctuations attributed to the canteen.

III. *There was an enormous increase in venereal diseases in 1899, coincident with tropical service; there was no increase in the United States in the four years following the abolition of the canteen, as compared with the two years preceding it. In the Philippine Islands there was an absolutely regular increase from 1896 to 1903.*

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Charts showing the above appear in the Surgeon General's Report for 1906, pages 50 and 90. The figures for the United States proper are as follows:

1897	84.59	1902	161.14
1898	81.49	1903	135.84
1899	148.43*	1904	163.42
1900	155.39	1905	178.72
1901	149.96	1906	158.91

The chart for the whole army (Surgeon General's Report, 1907, page 14) is similar to that for the United States proper, and both show a distinctly different character from the chart for Alcoholism. In the former the high level was reached in 1899, and no effect of the abolition of the canteen can be discovered. The greater prevalence of these diseases as compared with that before 1898 is clearly due to causes acting in 1899, and presumably to the tropical service, especially that in the Philippine Islands. I have not examined the figures prior to 1897. The disassociation of disease with Alcoholism and its relation to the tropics is further shown by adding the percentage of two venereal diseases in the four largest arms of the service, as shown in the international table, Surgeon General's Report for 1907, page 180. He also reports (p. 22) that the coast artillery, with the highest Alcoholism, has the lowest venereal disease, while the field artillery, with scarcely one-fourth of the former, has a much higher rate of disease. Note that the former is stationed entirely in the United States, and the latter is largely in the Philippine Islands. The cavalry runs higher than the artillery, and sometimes lower than the infantry, though the last named has twice its alcoholism. Furthermore, in the last report of the Surgeon General (1907, page 15) is a chart showing that the proportion of venereal diseases in the United States proper is 158.91, while in the Philippine Islands it is 310.34.

IV. *The increase of saloons outside Army posts, which was so generally predicted to follow an anti-canteen law, did not occur at all.*

*Showing insignificant effect of Spanish War in reducing amount of disease and effect of troops returning home from tropics.

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I make this statement with assurance but with great hesitation, because in the voluminous document sent to Congress by the Acting Secretary of War, January 8, 1903 (House Document, No. 252) is stated on page 15:

"Number of saloons within one mile of posts according to last reports 1,896
Number of saloons within one mile of posts February 2, 1901, 1,555

Number of saloons established since abolition of canteen..... 341"

On pages 16 and 17, the posts in the United States are specified, each name being followed by the number of "additional saloons established within one mile of military posts since February 1, 1902." I add the figures for each post in the United States and find the total to be 271 and not 341 at all. I have carefully read a considerable part of the volume which contains the reports on which the above figures are based, but nowhere have I found any warrant for them. Further; the table on page 18 claims the "number of places at which intoxicants are sold" "established since abolition of canteen," in the Philippine Islands to have been 371, whereas the sum of those established at each separate post in the Islands (pages 19 to 21), gives only 131.

It will amply show the character of the summaries given, if sample posts are taken somewhat at random, and the reports therefrom compared with the figures given in the table. I specify here as examples the two having the largest reported increase; the first five on the alphabetical list; and three posts near Washington.

The post in the United States reporting the largest increase according to the table, is Whipple Barracks, Arizona, with twenty-eight additional saloons in consequence of the passage of the anti-canteen law. On page 351 is printed what the commanding officer there actually reported, which was that there were no troops at that post until April 29, 1902 (over a year after the enactment of the anti-canteen law); that the whole of Prescott is within a mile of the post, and that Prescott contains twenty-eight saloons!

The second largest increase in the table is Fort Leavenworth, 22. The actual reports are (pages 112 to 145) on August 28,

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1901: "The city of Leavenworth lies south of the reservation, and within about *three* miles of the post proper, and being in a Prohibition State, it was impracticable to procure an accurate list of the saloons and other places where intoxicants could be obtained. So far as known, there are about 118 saloons near the city limits, and of these about eighty are within one mile of the reservation. During the past six months, i. e., following the anti-canteen law there has been no increase in this number. West of the reservation, within about one mile, there have been for years, three small saloons. * * * During the last year there has been a decrease of one saloon in that vicinity." August 18, 1902, a different officer commanding a different regiment, reported: "The number of saloons within one mile of the reservation is 102, with three gambling places." It is evident that no comparison can properly be made between these reports, and, since the first officer said there has been no increase following the anti-canteen law, but, on the other hand, a decrease of one, this statement seems in the absence of anything to contradict it, the only acceptable one. To arbitrarily take the cautious "about 80" of the first officer and subtract it from the "102" of the second officer's report and so obtain an "increase" of twenty-two is a remarkable use of figures!

Of the five posts standing first in the alphabetical list, three are reported as no increase. Two are reported with increase of two each, and I find in the first instance the two new saloons were thirty miles away from the post, not "within one mile," as stated (a second officer reported no increase at this post); and in the second instance, the post was a new one which never had had a canteen!

Washington Barracks is credited with sixteen new saloons. The reports (pages 341 to 349), show these facts: The post exchange officer reported thirty-four saloons within one mile before the anti-canteen law, and the same officer reported exactly the same saloons by name six months later; no increase. There is printed with this, statements of the Excise Board of the District of Columbia, naming fifty saloons before the passage of the Act, and stating that there had been no increase since. The reader

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would naturally conclude that the post exchange officer had not counted all the saloons, but the tabular statement subtracts the report of the one man from the report of the other man, and so manufactures an increase of sixteen!

Fort Myer, Va., appears in the table with eight new saloons to its credit, and on page 198 is an extract from the Washington *Post* of September 22, 1902, saying: "After the abolition of the army canteen—brought about by a great moral revolution a year or so ago—Fort Myer at once became the center of a circumference of grog shops, deadfalls, palaces of pleasure—the usual thing," etc. The official report of August 27, 1901 says: "The liquor saloons within one mile of the post (three in number) have not increased, but one that had closed for want of patronage immediately reopened, and now does a flourishing business." Reference is made to other saloons in Rosslyn, about one and one-half miles from the post, but the number is not given. The report of September 15, 1902, by a different officer, commanding a different regiment, says: "There are eleven saloons and drinking places within one mile of the reservation limits * * * all in operation at the time of arrival of the Second Cavalry troops at this post, January 23, 1902; no others since having been established." He names the saloon keepers, and from names which I recognize, I judge that he includes the Rosslyn saloons, especially as he mentions only two as located at the entrance to the post, so as to leave it quite in doubt as to what the true comparison is.

Fort Monroe, Va., figures in the table merely as having no increase. Reports (pages 182-186) show at passage of the law, fifty-one; six months later, forty-six; in 1902, forty, a total *decrease* of eleven saloons! The above are fair samples of this report of a former Secretary of War. Secretary Taft has carefully refrained from any expression of conviction on this subject.

V. *Desertions, courts-martial, etc., are due to so many causes I have not considered them worthy of thorough analysis, but so far as I examined, I could find no pro-canteen evidence.*

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I have noted a number of minor questions of interest regarding the canteen, but as they are not essential to the main issue, they are omitted here.

VI. The statement that "The Army from the lowest rank up is [1907] practically unanimous in its desire to have the canteen re-established," is an opinion, the proof of *which I could not obtain.*

Opinions expressed, as requested by the Department in 1899, before the passage of the anti-canteen law, can scarcely show opinions held in 1907, and even then only 582 officers out of 2,248 regulars and 1,524 volunteers reported; and but (500 non-commissioned officers), out of 171,646 enlisted were asked to report. (Report of the Secretary of War, 1899). Opinions of a certain number of officers were obtained in 1901 and 1902 in connection with the report on "increase" of saloons and printed in the same volume, and summaries (?) in the same table. I have shown so fully the character of this table in its saloon column, that the other columns can hardly be given serious consideration. So far as I can learn, no general inquiry has been made since that time. These reports of 1901 and 1902 are those which the then Secretary of War sent to Congress as the proof of his statement in his annual report for 1902, that "I am convinced that the general effect of prohibiting the use of beer and light wines within the limited area of the Army post is to lead the enlisted men to go out of the post, to frequent vile resorts which cluster in the neighborhood, to drink bad whiskey to excess, and to associate intimately with abandoned men and more abandoned women; and that the operation of the law is to increase drunkenness, disease of the most loathsome kind, insubordination and desertion, and moral and physical degeneration." Certainly the Secretary who signed this did not himself read these reports in detail and analyze the tables prepared from (sic) them, nor did he examine the reports of facts about Alcoholism, disease, etc., made by the army surgeons, before he authorized such an extreme statement.

Before I gave up expectation of finding evidence in favor of the canteen; I visited several of the officers in the War Depart-

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ment who were most likely to be informed on the subject, and only one of these outside the Surgeon General's office had examined the medical reports from which the actual results of the law might have been seen; none had any idea of the difference in the amount of Alcoholism in the different arms of the service, and every one regretted his inability to supply me with any pro-canteen evidence from *his* office.

Conversation with many officers at different posts and reading from their printed opinions has shown me—(a) a large amount of indifference, because the canteen was regarded as unimportant, or now as a dead issue; (b) a small proportion willing to explain in confidence their decided opposition to the canteen, but unwilling to say anything publicly, for obvious reasons; (c) those who had been so confident of evil results to follow the anti-canteen law that they naturally never thought of questioning whether these results had actually followed. The older officers remembered the great improvement in conditions during the canteen years (and attributed to it) and they also noted that the years after the anti-canteen law were worse than those immediately preceding it, but they failed to notice that the conditions of 1898 to 1900 were due to the Spanish War, Philippine insurrection, Boxer Campaign, etc., and therefore form no basis of comparison; and no man's recollection can be relied on to compare accurately a series of recent years with a series of pre-war years some time before. One man's personal experience is limited, and he necessarily relies mainly on hearsay in forming a particular opinion on a subject affecting the entire army. (As did I, also, when I expressed a pro-canteen opinion before investigation of facts!).

VII. *Quite apart from the canteen, the subject of drunkenness and immorality in the Army demands attention. International medical statistics show that the admission rates of Alcoholism, for Gonorrhea, and, (British Army excepted) for Syphilis, "were much higher than in any other army." (Surgeon General's Report, 1907, pages 23 and 26: for 1906, pages 22 and 24).*

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It is explained that the comparison of the different armies is not wholly fair, but the difference in both admission and death rates between the American and all other armies except the British, is so great that it must have some meaning. For example, one report (1906) gives regarding Alcoholism the rate of admission of enlisted American troops as 27.72, while the highest of any other army was 0.26; American rate of death as 0.17, while the only other armies with any such deaths are British, 0.07, and Russian, 0.001. Ours is the only army reporting any deaths from Gonorrhea—.02.

VIII. *Conclusions:*

It is evident that I have only scratched the surface of a mine of actual fact. But the great difference shown to exist in the different arms of the service leads me to believe that if army officers would make a careful study of the facts much could be done to reduce the amount of alcoholism, and it is for this reason that I have yielded to repeated urgings to set forth the main facts which I have learned. I have become convinced that the prohibition sentiment of the country makes the restoration of the canteen impossible. The sooner we forget it and adopt other methods for diminishing alcoholism, the better it will be for the army.

DISCUSSION.

Colonel VALERY HAVARD, U.S.A.—My objection to the present policy of excluding wine and beer from the canteen is that it renders the life of the soldier less pleasant, more irksome; it violates his personal liberty, that is those rights to which all men are reasonably entitled. In regard to his eating and drinking he ought to enjoy the usual privileges of any citizen, so long as he is not guilty of any excess which, in the opinion of his superiors, might be detrimental to his health or morals.

Lieutenant Colonel ALBERT H. BRIGGS, N.G.N.Y.—I am interested in the comparative statistics given by the reader of the paper. Drunkenness might be called a comparative condition, and what one authority might call drunkenness another might not consider in that category. Many of you remember the anecdote related by Surgeon Arthur Gaskell of the British Navy, at our last meeting, wherein a petty officer was represented as denying that a certain inebriated tar was "drunk" because he could "move his thumb." The wide difference between this view and that of the prohibitionist who regards a man slightly elevated by alcoholic stimulants

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as "drunk" would account for the equally wide difference in statistics; and to this difference I attribute much of the variation in statistics to which this question is subject.

Colonel JOSEPH K. WEAVER, N.G.Pa.—I am against the canteen and I think I voice the sentiments of the National Guard of Pennsylvania when I make this statement. You speak of personal liberty—"if they are restrained too much in their liberty we cannot get recruits." I think that if we could restrain beer to a reasonable amount it would not be so bad. I think the principle is wrong. The habit of drinking intoxicants is bad. It makes the guard more susceptible to discipline and disobedience; they are therefore not as good soldiers when they get beer. It renders the standing of regiments a great deal lower. We have regiments that use beer and others that do not. In our last encampment the three regiments which used beer received the lowest markings. It would be better for the army and national guard if intoxicants were not permitted, or if they are permitted, do so under great restraint.

Major CHARLES E. WOODRUFF, U.S.A.—The sick report does not show the amount of drunkenness as we get very few cases in the hospitals, though since the abolition of the canteen they are more numerous and more violent. The saloons around the post which had not flourished during the days of the canteen are rich now if not more numerous. The number of courts martial for drunkenness has increased in the last fifteen years, though the general courts have diminished. There is a vast change also in the soldier. It has gone on in all the armies of the world. A man who had served a great many years in the army was formerly expected to be a heavy drinker. Drunkenness and drinking were universal 150 years ago. When I entered the army twenty years ago I found many old soldiers who got drunk as regularly as pay day came, and stayed drunk until their money was gone. I have seen a gradual improvement and the number of total abstainers in the army is now exceedingly high. There is a change also in the character of the men who now make up our army; we have a higher grade than ever before and the canteen has no effect upon this fact one way or the other. Many now save their money and quite a big percentage deposit it with the paymaster. They are now mere boys between twenty and twenty-six who have not had time to acquire habits of drinking. I know that the abolition of the canteen has increased drunkenness and the drinking is done outside.

Medical Director JOHN C. WISE, U.S.N.—The paper by Dr. McGee is a most interesting and informing one. The facts she has collected are convincing and show that there is a wide spread interest in the subject of the Canteen. We see the influence of the Canteen in the Pennsylvania Guard and I think the judgment of the Medical Officers of the Guard is that it is not conducive to discipline or efficiency, but that those who indulge in it are more susceptible to the sun's rays and to digestive disturbances. I

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should be glad if the Canteen would never be restored to the Army and that its use become less and less in all the Guards of the States. Dr. McGee is to be congratulated on the informing address which she has just presented.

Dr. McGEE, closing.—Please note that I have strictly limited this paper to the *facts*. No opinions were given and I have eliminated the personal factor absolutely. The international figures are not wholly comparable, though they certainly have an important significance. As for beer against whiskey and other drinks, I am told by Dr. Wiley that whiskey is less harmful than beer. The general temperance of the country is improving all along as Colonel Woodruff says. The essential point I make is this. The official facts published by the War Department show that the Canteen is a factor of insignificant importance as compared to the other factors which affect drunkenness and disease in the army.

YEAST THERAPEUTICS IN GONORRHEA.

IN the *Muenchener Med. Wochenschrift*, Kehrer recommends yeast highly as a remedy in gonorrheal colpitis. The distrust which has been awakened recently as to the treatment of vaginitis with yeast is unfounded and is due to the improper use of the yeast crayon in acute gonorrhea of the uterus. Vaginitis and the inflamatory erosions are very often favorably influenced by yeast. Good results are often observed from its use in three or four days in the acute form of gonorrheal vaginitis. The best bactericidal actions of yeast preparations are those which do not contain any living yeast cells as the sterile zymin yeast of Albert. This preparation should only be used in the acute vaginal gonorrhea and never in the cervical form. The vaginal treatment is a good prophylactic to prevent the gonorrhea from attacking the parts higher up. The author considers the following as the simplest treatment: The vagina is first irrigated with sterile water and then sponged dry. The yeast is then injected and the patient kept in the dorsal decubitis with the foot of the bed raised. In six to seven hours the treatment is repeated. In this connection it may be stated that Captain T. B. Grant reported some excellent results with the use of yeast in genito-urinary work and gynecology in THE MILITARY SURGEON of May, 1907.—FRED J. CONZELMANN.

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PROPOSAL FOR A NATIONAL MEDICAL SERVICE OR DEPARTMENT OF PUBLIC HEALTH.

By SHELDON G. EVANS, M.D.,

SURGEON IN THE UNITED STATES NAVY.

THE world has but recently witnessed, probably in many ways the greatest war of all times. Even now the air is full of war and rumors of war; it is war, war everywhere and if not at war all nations are busily engaged in that surest preventative of war and preserver of peace, preparation.

We have witnessed an epidemic of battleship construction, all nations are increasing their armies as if distrustful of every action of their neighbors, until one anticipates with a shudder the enormous task that will fall to the only humanitarians in war, the medical departments of the governments concerned.

We say that we have refined the so-called art of war. Centuries ago the order was "to smite them hip and thigh and let no living thing escape;" now we shoot and then we succor, make frantic efforts to destroy life and then to save it, and it is to us, gentlemen, that the world looks to the accomplishment of the latter noble end.

Are we prepared? I fear not, and it is with the hope of making us better prepared to meet the terrible responsibilities that devolve upon us in war that I present this paper.

In the late Russo-Japanese war the Medical Departments of both the Army and the Navy came in for a great deal of well earned consideration.

In our own country numerous plans are being considered and bills introduced in Congress, looking to the almost complete reorganization of the Medical Departments of both services, and so I thought this an opportune time, the psychological moment, as it were, to present to this Association a far reaching plan to that end.

The question that I am about to bring before you gentlemen, is one that has occupied my attention for many years and

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it is with a view to the free and honest discussion of the subject that it is now presented. It is a proposition that has been broached before, in part, on many occasions, but never in a form to involve the radical changes that are about to be suggested.

In a nut-shell the plan is the absolute consolidation of the Medical Departments of the Army, Navy and Public Health and Marine Hospital Service and all strictly medical positions coming under Federal control into one body, to be known as the Department of Health, or other suitable name, to be headed and controlled by a Secretary of Health a member of the President's Cabinet.

It is only a short while ago that the President appointed a board composed of medical officers of the Army and Navy to consider the question of uniformity of equipment for the Medical Departments of both services. If uniformity of equipment is necessary and advisable, why not uniformity of personnel?

I might say that I firmly believe that all quarantine matters should be under Federal control and included in this department. This would greatly increase the number of required medical men over the numbers about to be suggested and add importance to their work and to the department, a great advantage as every one connected with the government service knows.

Dr. Sexton, of Tulane University, says "as to whether national quarantine should be under the supervision of the Marine Hospital Service or under control of the Army or Navy medical service or under a cabinet health officer, we leave others to argue, but that maritime quarantine should be in the hands of the National Government we are thoroughly convinced.

We have under the National Government today a Department of Commerce and Labor, a Department of Agriculture and many others advocated and even a Department of Public Health has often been advised but never as far as I know to include the Army and Navy medical departments.

This seems a vast change from present conditions and is sure to meet with strenuous opposition, but when it is considered from all standpoints I am convinced that the majority of you

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will recognize the great benefits to be derived not only for the National Government but for the medical men in the various services as they now stand.

The saving to the government would be considerable. One has only to look at the various hospitals of the services, side by side (as in Boston, Naval and Marine) each fully equipped for all kinds of work, with from three to six medical officers, where were the two combined the work could be done with a slight increase in the force of one. Or note the number of recruiting stations of the Army and Navy, often in the same building, where the work of the two is hardly sufficient to keep one medical officer decently busy and yet the Navy owing to shortage of officers is unable to send regular medical officers on recruiting duty for the Marine Corps in spite of the fact that it is fully realized that men of experience are required for this kind of work.

Many will probably exclaim that the duties of the medical officers in the three services are too diversified and differ in too many essential features to be united; that one man could hardly master the details of all of the work. This is a great mistake. Surgeon Stokes, U.S.Navy, in his able article recently published in our journal says "we can readily see that service conditions are really much alike in ships and in forts—we may expect the same horrible infected and mutilating wounds—the transportation problems are both difficult and hazardous—we all meet the same peace and war conditions of sanitation ashore—while on the surface our duties appear to differ widely they are really much the same." In my humble opinion we hear too much nowadays of the medical officer and too little of the physician or surgeon. We are all too prone to forget that we are disciples of Aesculapius and to lay too much stress upon the fact that we are officers in a military service.

Far be it from me to detract from the dignity of the position of a medical officer in any honorable service, but I am one of the old style medical men who look upon the title of Doctor of Medicine as the highest in the gift of any university or college, and upon the practice of medicine, the healing of the sick, suc-

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coring the helpless and relieving the sufferings of overburdened humanity as the noblest profession under God's blue canopy, and this all ought to admit is the first and most important duty of a medical man in either or any service. To be a doctor first and a medical officer afterwards.

There is of course a vast amount of work, outside the purely professional that must be done, disagreeable as it is to most of us, but this scheme of consolidation will reduce that to a minimum and also place us in a position of independence not now attainable in any service. Of the intricacies and official details of the work in the Public Health and Marine Hospital Service I cannot speak, but having been brought up in the Army I was able to observe many of the difficulties encountered by the medical men in that service and seventeen years experience in the Navy has convinced me that there is room for vast changes in our own official work and position and the earnest efforts now being constantly made in our service in this direction, certainly verify that conviction.

The work in the three services may differ in many respects but the foundation is the same, medical and surgical skill, a knowledge of hygiene and a large share of common sense. The latter cannot be taught or acquired but the three former we can teach in a National Medical School and a homogeneous body created capable of grasping and treating in its own way the problems presented.

In what way does or should the medical officer differ from his professional brother in civil life? In order to satisfy one's self in regard to this matter it is only necessary to read carefully the Instructions for Medical Officers of the Army and of the Navy and the various books and pamphlets issued for the instruction of medical officers in the Public Health and Marine Hospital Service.

You will find page after page in each book devoted to the multitudinous duties of the medical officer and unfortunately, as I think we all admit, you will find a great part of it devoted to the administrative, executive or purely clerical work. Admin-

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istrative ability comes from years of experience, executive ability is congenital and certainly clerical ability can be easily acquired.

In any government service a large amount of clerical work in the form of record keeping, etc., is of course necessary, but with the consolidation of the three services this could be reduced to a minimum by adopting a system of returns applicable to all. Thus not only would a great amount of work be saved the medical officer but the saving to the Government in pay of clerical force would be considerable.

Reams have been written in our medical journals about the duties of medical officers, but outside the three requisites mentioned the duties of a medical officer do not differ from those of his civil confrere.

With a large Medical School under the national government and supported as those at West Point and Annapolis we could yearly turn out a class of medical men fully capable of performing all the duties of a medical officer in either the Army, Navy or Public Health and Marine Hospital Service.

By a government school I do not mean a post-graduate school as we now have both in the Army and Navy but one to take young men and teach them medicine and surgery and hygiene as now taught and all that pertains to the practice of medicine, granting them the degree of Doctor of Medicine and launching them upon their career as fully equipped for their duties as are the graduates of our government institutions today. It is often said that an institution of this character would meet with strenuous opposition from outside medical schools as tending to compete with them. There is no more room for such objection than there is to West Point or Annapolis on the part of other colleges.

The purely official duties of a medical officer in the services today are easily learned and if the young officer is well grounded in his profession, with a little application and the exercise of a little tact he need have no fear of difficulty. If he attends to the professional side of his work with care and zeal he has no cause for alarm in regard to the official and will have very little of the common trouble with his commanding officer of the line.

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It is true that some instruction in purely military and naval subjects as stated is necessary. This could be readily given at the National Medical School as it is at the two service schools today. In this connection and while speaking of schools of medicine under the Government, permit me to quote from a recent article in one of the service papers "while the instructions at the two schools (the Army and Navy Medical Schools) is devoted primarily to military medicine and surgery, military diseases, chemistry, sanitation, hygiene and related subjects, it necessarily embraces a course in military and international law, administrative duties, tactics and signals, etc. These schools having *limited facilities* (the italics are mine) for clinical work and practical instruction, may prove inadequate to the requirements that will arise from an increase. It is suggested students be sent to the service schools and then to the large hospitals in the great cities for practical training." Why is this so? Because under the present system of division of labor and too numerous hospitals we have not the material nor the facilities in any one place for instruction clinically. With combined hospitals and combined corps we would have more than enough material to instruct any class of men thoroughly in all branches of medicine and surgery in addition to their official duties.

Another fact that must not be lost sight of is that the young medical men would be brought up in an atmosphere filled with "esprit de corps," a fact so evidently beneficial at the Military and Naval Academies. Again I quote Surgeon Stokes "if the graduates of these schools (meaning the Army and Navy Medical Schools) acquired nothing more than an 'esprit de corps' and a unified conception of the duties required of them in their respective corps, the existence of the schools would be justified." What a large amount of this necessary sentiment would be instilled into the young men at the National Medical School.

The graduates of this institution could be then detailed for duty with the Army, the Navy or the Public Health and Marine Hospital Service and be transferred from one to the other at any time. Thus would the duties not only be performed in a more efficient manner but every officer would have opportunities for

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varied kinds of work and would not be compelled to suffer from professional dry rot so often the case now where a man serves for years at a one company post or for years on a small gun-boat drifting around on the broad ocean away from all contact with his professional brothers treating perhaps one or two cases a week and these the same old venereal.

Variety is the spice of life, why not give it to us of the services professionally as well as in other ways. Duty with troops, on board ship, at quarantine, inspection duty or in a hospital?

Simplify the method of keeping records or rather combine all the systems into one useful one and the various duties can easily be mastered by any man.

Let the Secretary of War call upon the Secretary of Public Health for a medical officer as brigade surgeon, let the Secretary of the Navy, call for a medical officer for a battleship or cruiser, the Secretary of the Treasury for an officer to command the Marine Hospital at Boston or to do inspection duty in Naples. How simple. Just as now the Secretary of the Navy calls upon the Commandant of the Marine Corps for an officer of certain rank to command the Marine Guard of a ship.

I have had called to my mind by officers, in connection with this matter the difference in the methods of handling the wounded in the Army and the Navy, transportation, etc. The methods are perhaps different but are any of them so intricate or difficult that they are beyond the ken of any man who knows medicine and surgery as he should? No; it is with us as President Roosevelt has said "the man who meets the conditions as they arise and with the materials at hand in the most efficient manner," that is the man we want and that man will be a good medical officer in any service and under all conditions.

At the present time we have in the Army 323 medical officers with twenty-three vacancies, in the Navy an authorized number of 350 with forty vacancies and an increase allowed for next year which will increase the number of vacancies by twenty-five, and in the Public Health and Marine Hospital 130 officers with twenty-two vacancies. In addition to the above there are in

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the Army 183 Contract Surgeons,* in the Navy eighteen Acting Assistant Surgeons and in the Public Health and Marine Hospital Service 237 Acting Assistant Surgeons and in the latter Service about twenty-two vacancies in the regular establishment.

Under existing conditions it is almost impossible to get young men to enter any of the services, and in spite of the most strenuous efforts the number of vacancies increases each year.

Here we have a total of about 900 medical officers not counting the Acting Assistant Surgeons and Contract Surgeons of which there a great number now employed as shown above. All services are crying loudly for an increase, showing that all are very short-handed, so, let us say that there are required for the service of the Government at least 1,200 medical men which I think you will all admit is a very small estimate.

The latest Navy Register shows but 983 commissioned line officers on the active list and yet the United States Government maintains a large school at enormous expense for the education of these officers and graduates large classes each year.

Why should not the same be done to keep a corps of twelve hundred or so medical officers proficient in their professional calling and thoroughly well posted in all the routine military and naval duties required of them?

It seems to me that the consolidation could be easily effected of the various corps as they now stand having in the new department the grades of Surgeon General, Assistant Surgeons General, Deputy Surgeons General, Surgeons Captain or Colonel, Surgeons Commander or Lieut-Colonel, Surgeons Lieutenant Commander or Major, Surgeons Lieutenant or Captain and Surgeons Lieutenant (J. G.) or Lieutenant. All to have positive rank assimilated with that of the line of the Army and Navy, the same being true of pay and allowances.

The question of titles I leave for future consideration merely suggesting that the title change with the branch of the service

* The Medical Reserve Corps, since the writing of this paper, has supplanted the body of Contract Surgeons and in other respects the figures are somewhat changed by legislation and other causes, but these facts do not affect the author's argument.—EDITOR.

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with which the officer may be serving, for instance if with the Navy, Surgeon Lieutenant Commander, or if with the Army, Surgeon Major, etc.

Simply as a basis I have taken the number in each grade about as follows:

Surgeon General, 1, rank of Vice Admiral or Lieutenant General.

Surgeon (R. A. or M. J.) 3, rank of Rear Admiral or Major General.

Surgeon (Com. or B. G.) 8, rank of Brigadier General or Commodore.

Surgeon (Col. or Capt.) 25, rank of Colonel or Captain.

Surgeon (Lt. Col. or Comdr.) 35, rank of Lieutenant Colonel or Commander.

Surgeon (Maj. or Lt. Col.) 250, rank of Major or Lieutenant Commander.

Surgeon (Capt. or Lt.) 900, rank of Captain or Lieutenant after three years service, with rank of 1st Lieut. or Lt. J. G.

The number in each grade could be changed at any time by act of Congress as the conditions of the service might require but I have made the numbers correspond so far as possible to the ratio proposed in the various bills recently introduced in Congress for the increase in the line of the Army and Navy.

A plan should be devised for a regular and steady flow of promotion a "sine qua non" in any military service.

This body of medical men should be entirely independent of any other department and self sustaining. By the latter I mean that it should be capable of performing all the duties devolving upon it, under all conditions without assistance from other departments.

The cause of a great deal of friction in the army to-day is the lack of its own transportation facilities in the Medical Department. This department should clothe and feed itself, transport itself and be prepared to feed and transport all patients without assistance. I do not mean that it should always do so

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though this might be very desirable, but it should be able to do so. When a patient is fed his ration should be credited to the Department of Health.

The status of the medical officer on board ship would be then one of independence and positive position and with the Army in the field the medical officer would not have to go on his knees to get a cart and horse from the Quartermaster to transport supplies or even patients. All would run smoothly and I fully believe to the greater satisfaction of all parties concerned and certainly to the patients, the first consideration.

This then, Gentlemen, is the question that I submit for your consideration trusting that my efforts may at some future day bear fruit in the emancipation of the Medical Departments of the Federal Government from many of the burdens of red tape and dissatisfaction; making us a homogeneous and powerful body of medico-military men upon whom so much devolves in time of war and of peace too for that matter.

I speak to the great majority, the large body of medical officers in all services who are proud of the distinction of their degree, whose life interest is the succoring the maimed, the halt and the blind, whose home is by the bedside of the suffering, whose noble deeds and self sacrifice in peace and in war will go unrecorded in the newspapers and in the congressional record and who may go to their graves unsung, but not unwept or unhonored.

THE REDUCTION OF MORTALITY IN ABDOMINAL GUNSHOT WOUNDS.

AMONG the conclusions reached by von Oettingen in a paper read before the last German Surgical Congress was the opinion that proper instructions to the individual soldier, and special training of personnel of the medical corps in the field, together with improvements in the methods of transport of the wounded, will be the chief means of reducing mortalities in the future.

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THE EFFECTS OF TROPICAL CLIMATE ON THE WHITE RACE.

By CAPTAIN WILLIAM A. WICKLINE,
MEDICAL CORPS UNITED STATES ARMY.

THE Chief Surgeon, Philippines Division, Colonel Charles B. Byrne, in order to ascertain if possible any and what changes the usual tour of tropical service produces on the physical condition of officers and enlisted men of the army, and to further the study of "the effects of the tropical climate on the white race," instituted a series of examinations; the first to be made as soon as practicable after their arrival in the Philippines Division, and one every six months thereafter during their stay.

The Seventh United States Cavalry arrived in this Division from the United States in June 1905, and was stationed at Camp McGrath, Philippine Islands. This post is well situated and is one of the most healthful in the islands. Free from epidemic diseases, and with scarcely any malarial fevers, or other debilitating diseases, it presents an ideal location to study the effects of the climate.

There were 104 men (including twenty-two officers) of this regiment selected, upon their arrival, for observation,—forty-three were blondes, fifty-nine brunettes, and two American Indians. Thirty-six show previous tropical service. All types were selected, and examinations were fully made as outlined on the blank forms used for record. There were four examinations in all made, the results of which are given in this report.

The first regular examination was made by Captain Edwin P. Wolfe, Medical Corps, United States Army, and completed in February 1906. There had been a preliminary examination made in September 1905, which was not very complete

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and included only a part of the men, afterwards selected by Captain Wolfe.

Particular care has been given to the technique in doing the blood work and in examining the lungs, heart, liver, spleen and nervous system. Any illness at the time or since the last examination, the use of alcohol and the duties performed, have been noted on the progress charts. The working method adopted by Captain Wolfe, with a very few exceptions, has been followed. The von Fleischl apparatus for determining the hemoglobin has been used, and the Thoma Zies for counting the red and white cells. The number of leucocytes has been based on the count of 1,600 squares; the erythrocytes on 400 squares, and the differential count on 500 cells per man.

On account of transfer and the expiration of term of service, some of the men were not present at the last two examinations. The number of men at each of the examinations is given in the tabulated results.

The examinations show a reduction in the percentage of hemoglobin. The highest recorded is 110 per cent, the lowest sixty-three per cent, giving an average at the first examination of ninety-four per cent, at the second eighty-nine per cent, at the third eighty-six per cent, and at the last eighty-three per cent. Comparing the first examination with the last, about eighty-six per cent show a decrease in the percentage of hemoglobin, about five per cent showing a gain, the remainder showing no change.

The change in body weight corresponds very closely to the hemoglobin index. Comparing the weight as shown in the first examinations with that as shown in the last about eighty per cent show a loss of weight, with an average loss per man of 8.1 pounds; whereas only about fifteen per cent show a gain in weight with an average gain per man of about six pounds. Eighty-two men show loss, and fifteen show gain.

The study of the nervous system has been based largely upon the individual's statement as to increased irritability, loss of memory, loss of power of application, loss of initiative, occular

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pain, insomnia, palpitation of the heart, etc., etc. The number complaining of these symptoms has increased with each examination, and it is believed that a sufficient amount of evidence has been produced to conclude that unquestionably the nervous system of the majority of white troops, serving in these islands, is more or less affected, producing and exaggerating the tendency to neurasthenia and mental irritability, and to develop other nervous diseases in those who possess a predisposition. At the second examination eighteen per cent complain of these symptoms, at the third examination thirty-three per cent, and at the the fourth forty-seven per cent. The duties performed by these men were not more arduous than at posts in the United States.

The high erythrocyte count in tropical countries, noticed by different observers, has been verified by these examinations. The highest count made was 6,800,000, the lowest 4,200,000, with an average of 5,640,000. In studying the pulse and circulation, there has been no loss in the volume of blood perceptible. It has been explained that the high count is due to excessive perspiration, thereby concentrating the amount of blood in the body by the loss of fluid, in that, the increased number of red cells is shown to exist in all seasons, without particular relation to the amount of fluid lost or ingested. It was suggested by Captain Wolfe, and would seem to me to be more logical, to account for the difference by the effect of light and heat, stimulating the blood regenerating centers, or, as the oxygen carrying power of the blood is reduced by the loss of hemoglobin, and if, as is claimed, the oxygen is relatively less in the atmosphere of the tropics, it would appear that this might be an effort on the part of nature to regulate the supply of oxygen, demanded for the process of body metabolism, by a numerical increase in the individual oxygen carriers.

The number of respirations shows an increase, giving an average of 19.6 per minute, which may be accounted for in the same way.

The most notable changes in the examinations of the blood occur in the differential leucocyte count. A chaotic condition

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exists in the nomenclature of the different leucocytes with especial reference to the large mononuclears. In these examinations, the classification outlined on the blank form for record, has been adopted and is as follows:

Small mononuclears,	Large mononuclears,	Polymorphonuclears.
Eosinophiles,	Mast cells.	

Under small mononuclears all lymphocytes of about the diameter of ten microns or less have been included, as defined by Cabot, and under large mononuclears have been included the transitionals, the lymphocytes and mononuclears of a diameter greater than ten microns.

It is to be hoped that some definite standard will soon be worked out, whereby the results of different observers may be strictly comparable. It will be seen by referring to the following table of results, that there is a continuous decrease in the number of polymorphonuclears with a relative increase in the lymphocytes. The second examination shows an average of sixty-four per cent polymorphonuclears, the third shows sixty per cent and the last fifty-four per cent.

Cabot, in his clinical examination of the blood, says: "It would appear that the degree of health in persons not organically diseased, might perhaps prove to vary directly with the percentage of polymorphonuclear cells in the blood."

There is found an increase in the number of eosinophiles; in some cases running up to forty per cent.

The hook-worm and other intestinal parasites have been demonstrated in some of these cases, and it is believed that this increase in the percentage of eosinophiles may be caused by parasitic skin diseases and intestinal parasites.

Attention is attracted to a number of cardiac disturbances, such as palpitation, functional and organic murmurs, and cardiac irritability. I believe that the majority of the cases other than organic, is perhaps due to the irritability of the nervous system. While there has not been observed any material increase in the organic lesions of the heart or any change in the structure of the

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arteries, yet it seems probable that a long period of service might increase the tendency in that direction.

The numerous intestinal parasites together with a lack of variety in the dietary, may help to explain the growth in number of those complaining of indigestion and constipation.

In the comparative study of the blonde and brunette types, I have not been able to find any marked difference in their physical condition. It would seem that both types are about equally susceptible to the climatic influences met with in these islands. A comparative study of these types in those who have been in the tropics for a longer period would be interesting.

In summing up the conclusions, which I believe may be fairly and logically drawn from these observations, there are a number of factors to be necessarily considered, such as, a changed and modified dietary, a change in the environment, the susceptibility to tropical diseases, the mental effect on the individual, of being a long distance from his home, and the change in military duties incident to foreign tropical service. The effect that any or all of these factors may have on the health of those serving in the tropics is not wholly apparent.

It is to be observed that of the thirty-six who show previous tropical service in Cuba, Porto Rico and the Philippines, only in those showing continuous tropical service, is there any appreciable difference in their physical condition noticeable.

OFFICERS AND ENLISTED MEN.

Number Examined	70	104	97	81
	Prelim. Exam. (Sept. 1905)	1st. Exam. (Dec. 1905)	2nd Exam. (Aug. 1906)	3rd Exam. (April 1907)
Hemoglobin	94 per cent	89 per cent	86 per cent	83 per cent
Erythrocytes	4,980,555	5,343,595	5,429,960	5,330,888
Leucocytes	6,943	6,699	6,624	6,831
Small mononuclears		21.80 per cent	26.61 per cent	33.38 per cent
Large mononuclears		9.44 " "	8.77 " "	6.15 " "
Polymorphonuclears		64.43 " "	60.04 " "	54.87 " "
Eosinophiles		4.10 " "	4.39 " "	5.14 " "
Mast cells		.22 " "	.19 " "	.47 " "
Nervous system (disorders)		18 " "	33 " "	47 " "

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WEIGHT.

Loss		Gain		No Change
No.	Average	No.	Average	No.
82	8.1 lbs.	15	6 lbs.	4

BLONDES.

Number Examined	48	42	38
	1st. Exam.	2nd Exam.	3rd Exam.
Small mononuclears.....	18.85 per cent	25.20 per cent	33.25 per cent
Polymorphonuclears....	67.70 " "	61.51 " "	54.30 " "

BRUNETTES.

Number Examined	59	52	46
	1st Exam.	2nd Exam.	3rd Exam.
Small mononuclears.....	23.28 per cent	27.81 per cent	33.58 per cent
Polymorphonuclears ...	60.28 " "	56.65 " "	53.12 " "

OFFICERS.

Number Examined	22	22	19	17
	Prelim.Exam.	1st Exam.	2nd Exam.	3rd Exam.
Hemoglobin.....	96 per cent	94 per cent	91 per cent	87 per cent
Erythrocytes	5,800,000.	5,832,600	5,556,200	5,512,600
Leucocytes.....	.....	6,508	5,642	6,391
Small mononuclears..	.....	27.57 per cent	28.48 per cent	35.81 per cent
Large mononuclears.	.....	7.75 " "	8.93 " "	5.75 " "
Polymorphonuclears.	.....	60.10 " "	58.35 " "	53.71 " "
Eosinophiles.....	.....	4.08 " "	3.74 " "	4.10 " "
Mast cells.....	.....	.50 " "	.55 " "	.59 " "
Liver (diameter in mammary line).....	.....	.104 m	.112 m	.114 m
Nervous system (disorders)	.....	1	9	12

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WEIGHT.

Loss		Gain		No. Change
No.	Average	No.	Average	No.
13 59.09 per cent	6 lbs	8 36.36 per cent	9.5 lbs	1 4.55 per cent

ENLISTED MEN.

Number Examined	50	82	78	64
	Prelim. Exam.	1st Exam.	2nd Exam.	3rd Exam.
Hemoglobin	91 per cent	87 per cent	84 per cent	82 per cent
Erythrocytes	*4,820,000	5,209,106	5,383,820	5,282,625
Leucocytes	6,493	6,750	6,863	6,948
Small mononuclears		20.23 per cent	26.15 per cent	32.71 per cent
Large mononuclears		9.89 " "	8.73 " "	6.25 " "
Polymorphonuclears		65.64 " "	60.49 " "	55.24 " "
Eosinophiles		4.10 " "	4.55 " "	5.42 " "
Mast cells		.15 " "	.12 " "	.44 " "
Liver (diameter in mammary line		.109 m	.104 m	.109 m
Nervous system (disorders		18	23	25

WEIGHT.

Loss		Gain		No Change
No.	Average	No.	Average	No.
69 87.34 per cent	8.5 lbs	7 8.86 per cent	2 lbs	3 3.80 per cent

OFFICERS AND ENLISTED MEN.

Blondes (41).

Hemoglobin			Weight		
Loss	Gain	No Change	Loss	Gain	No Change
38 92.68 per cent	3 7.32 per cent	0	32 78.05 per cent	7 17.07 per cent	2 4.88 per cent

*Hematokrit used in preliminary examination would probably help to account for the reduced count of erythrocytes

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Brunettes (*58*).

Hemoglobin			Weight		
Loss	Gain	No Change	Loss	Gain	No Change
51 87.93 per cent	2	5 3.45 per cent	48 82.76 per cent	8 13.79 per cent	2

American Indians (*2*), *light brown*

Hemoglobin			Weight		
Loss	Gain	No Change	Loss	Gain	No Change
1 50 per cent	0	1 50 per cent	2 100 per cent	0	2

SOME PECULIAR MILITARY MEDICAL CASES.

IN *Roths Jahresbericht*, attention is called to two disease pictures observed by Freund in recruits. 1. The recruits take suddenly sick with all the manifestations of a severe pneumonia. Chill, tympanic sounds over one lung, wheezing and rales over both lungs, muco-purulent, blood tinged sputum, not, however, the characteristic prune juice sputum of pneumonia. The symptoms disappear in a few days. Some observers consider this the engorgment stage of pneumonia and believe its early disappearance due to the powerful resistance of the youthful patient. Freund believes it is only a sign of congestion in the lesser circulation, brought about by respiratory exercises, resulting in a hyperemia and consecutive moistening of the lung tissue with relative heart weakness. The absence of the characteristic sputum and the pneumo-cocci speaks in favor of Freund's view. 2. After severe physical exercises, recruits often become sick with fever, general lassitude and severe muscular pains. Objective symptoms are absent. In one or two days the patient is well. Freund considers this an auto-intoxication, caused by the absorption of toxins produced by excessive muscular exercise. E. del Vecchio reported a case of neuropathic recurrent hematemesis, the cause of which he does not find in the mouth or stomach but in the esophagus, in the region of the heart, where the hematemesis results through the cardiac impulse in nervous persons with hemophilic tendency, not with emesis but with singultus.—FRED J. CONZELMANN.

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THE TEACHING OF TROPICAL MEDICINE.

By CAPTAIN JAMES M. PHALEN,
MEDICAL CORPS UNITED STATES ARMY.

AS the desirability of special courses of instruction in the diseases of tropical countries is becoming more and more apparent and as this want must one day be supplied in our own country, I will say something of the history, scope and work of a school which was one of the first to be established for the exclusive teaching of tropical medicine, in the hope of being helpful to those who are looking forward to the creation of such a school in America.

To show how short the time has been within which this specialty has been deemed of sufficient importance to warrant special instruction, I need only say that this pioneer of schools of Tropical Medicine with this month begins its tenth year of instruction. Previous to that time tropical medicine had but a small place in the ordinary curriculum; a few lectures at most and these given because of their academic interest rather than because they were considered of practical importance.

It was in 1897 that Sir Patrick Manson, but recently returned from a long residence in southern China, was appointed physician to the branch hospital of the Seaman's Hospital Society at the Albert Docks in London. Though the hospital was small, a great variety of important tropical diseases was to be seen there, and to utilize this material to some extent, visiting medical men from the tropics and others interested in this line of work, were invited to the hospital and for them were demonstrated some of the more important parasites then known to cause disease. In this way a small group of enthusiasts was brought together, and interest in tropical medicine stimulated to the extent that during the following year a course of lectures embracing the more common of tropical diseases was given at the Charing Cross Hospital.

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The work being done at the Seaman's Hospital and at the Charing Cross Hospital coming to the attention of the Hon. Joseph Chamberlain, then Secretary of State for the Colonies, attracted him with a peculiar interest, as it had long been recognized at the Colonial office that many of the tropical diseases were preventable but that little had been done because of a lack of that special knowledge necessary to carry on the work. The outcome was that Mr. Chamberlain suggested to the Seaman's Hospital Society the establishment of a school of tropical medicine in connection with its hospitals, and the acceptance of the suggestion by that organization.

The hospital at the Albert Docks was decided upon as the proper location for the school, but before it could be put into operation increased accommodations for patients had to be provided and laboratories to be built. The London School of Tropical Medicine was formally opened on October 2, 1899 with accommodations for twenty students, but this modest estimate of the needs of the school was early found to be inadequate and in 1903, the buildings were enlarged so as to accommodate about forty students.

Mr. Chamberlain's object in the establishment of the school, was that the medical officers of the Colonial Service, and more particularly the recent appointees to that service, should be provided with a course of instruction which should make them acquainted with the diseases peculiar to the tropical countries in which most of their work would be found, but also to better prepare them to cope with these diseases, and to enable them to investigate intelligently the causation of those still of unknown origin. It was early recognized however that the usefulness of the school would be greatly impaired if its advantages were denied to others than the Colonial medical officers, and its courses were therefore thrown open to all practitioners.

The location of the school at first thought appears to be unfortunate, located as it is at a distance requiring nearly thirty minutes travel by the suburban trains of the Great Eastern Railroad, and in a section of the unsavory East End inhabited exclusively by dock laborers. But it is this section that provides the

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peculiar clientage of the hospital, and these people, Lascars, Chinese, Negroes, and others have the strongest prejudice against being taken away from the neighborhood of the docks, and of the ship which is the link connecting them with their distant homes.

The hospital has accommodations for fifty patients and at all times is nearly full. The wards are large, clean and well ventilated, furnished with the most modern furniture and equipment. To the hospital are assigned all cases of disease that are peculiar to or that are more frequent in tropical climates. The more common maladies, as dysentery, malaria and beri-beri may be seen at all times, while patients suffering from plague, leprosy, relapsing fever, kala-azar, trypanosomiasis, filarial and Guinea-worm disease are not very uncommon.

The ward clinics are conducted by Sir Patrick Manson and Dr. Andrew Duncan, each holding two hourly clinics a week during the school session. During these hours of bedside instruction, and at other times the student is permitted to make examinations of the patients, and to become acquainted with the various clinical manifestations of their maladies.

Of special interest are the clinics of Sir Patrick Manson, who has been appropriately styled "the Brahma and Vishnu—the creator and sustainer"—of the school, and whose individuality is impressed upon every department. A man of the widest clinical experience in tropical diseases, and possessed of a most attractive presence and a fine voice and delivery, his lectures and clinical demonstrations are examples of the highest development of the teaching art.

The school building proper is a modern three story brick building situated in the same enclosure as the hospital, to which it is connected by a covered passage. It contains the laboratories, lecture amphitheatre, museum, library and out-patients dispensary, together with accommodations for the housing of twelve students who are thus in position to devote their entire time to study and work in the laboratories. The dining room also affords opportunity for other than resident students to obtain lunch without leaving the building.

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Three sessions of the school are held each year, beginning on January 15th, May 1st, and October 1st, and extending over a period of twelve weeks. The instruction is divided between practical work in the laboratory occupying four hours each day and two hours devoted to didactic lectures or clinics.

In the laboratory course the student is first instructed in the use and care of the microscope and its accessories including instruction in the use of the micrometer and the Camera Lucida. Then the study of normal blood is taken up, and the methods of making suitable films and the use of the different stains becomes familiarized. After sufficient practice has been given in the differential counting of the leucocytes, blood films illustrative of the primary anemias are given around, followed by those secondary anemias due to the malarial organisms, Ankylostoma and the Bothriocephalus latus.

The parasites of the blood are next taken up, beginning with the malarial organism. The wards at the hospital at almost any time furnish specimens of the benign and malignant tertian organisms for study, and frequently the quartan also may be found. Considerable time is given to the study of these parasites, so that their different phases may be readily recognized, both in fresh films, and after staining. There is almost always within reach of the instructors, either in the hospital or elsewhere, some individual whose blood contains the filarial embryos, and these are likewise shown, together with other filarial embryos of lower animals.

Cases of human trypanosomiasis are not very infrequently seen in London, but the infrequency of this parasite in the blood makes it quite difficult of demonstration. Nevertheless this parasite is seen occasionally, while the more common trympanosomes of cattle, birds and fishes are readily found in the blood of these animals, and being almost identical in appearance gives the student a correct idea of the aspect of the parasites in man.

Representatives of the class of parasites known as spirochaetae or spirilla are studied from cases of relapsing fever, while the dried specimens are shown of the parasite causing the recently discovered disease known as African spirillosis. The

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Donovan-Leishman body, the specific cause of Kala-Azar can hardly be called a parasite of the blood certainly not a parasite of the circulating blood. Nevertheless it is intensely interesting, and of the greatest importance, and the opportunity the student has to become acquainted with its appearances is one of the great advantages of such a school and hospital.

Practical acquaintance is also obtained with several classes of blood parasites of lower animals, pathogenic and otherwise, whose members are not as yet known to cause disease in man, but which may at any time be discovered to be of the greatest importance as causes of disease. Such parasites are the Piroplasma of cattle, the Halteridia and Proteosoma of birds, and the Hemogregarines of certain cold blooded animals, as fish, frogs and lizards.

The close relation of blood parasites and insects as their carriers, leads naturally to the study of such insects as are of importance in the transmission of disease. After a classification of these members of the Animal Kingdom, instruction is given in their collection, mounting, preservation and transportation. The first class to be taken up is the mosquito and the anatomy of its several phases, egg, larva, pupa and imago are carefully studied, so that the classification of the family of the Culicedae which follows may be readily understood. The museum of the school furnishes examples of nearly all of the more important genera, which are utilized for study, with the idea of familiarizing the student with their appearances.

The life cycle of the malarial parasite and the filarial embryo within the body of the mosquito are shown in serial sections and in fresh specimens, and the student is taught the method of preparing sections and of dissections of the mosquito for this study.

Biting flies have within recent years assumed importance on account of their activity in spreading Trypanosomiasis and perhaps some other disease. The known offenders of this class are the tsetse flies, belonging to the genus Glossina, the carriers of the Trypanosoma Brucei of domestic animals, and some members of the Stomoxys and Tabanidae. Other small animal life

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that claim importance in this connection are the ticks, distributors of Texas fever in cattle, and of African spirillosis in man, and the fleas, under grave suspicion at least, as the carriers of plague.

Helminthology is one of the most important branches of tropical medicine, and the classification and study of intestinal parasites is given the attention their importance demands. Excellent opportunity is given for becoming familiar with the intestinal worms, the flukes, and also with the protozoa, pathogenic and otherwise which inhabit the alimentary tract. No less important than the study of these parasites is the recognition of their eggs, and here the wards of the hospital at all times furnish an excellent variety for study. Two disease conditions which on account of their wide distribution and economic importance are given particular attention are Bilharziosis, an invasion of the veins of the bladder and rectum by the Schistosoma hematobium, and Ankylostomiasis.

A short period of instruction in bacteriology completes the practical course, but this work only emphasizes the fact that in essentially tropical disease, bacteria play but a small part and that the leading role is taken by animal parasites. In fact protozoa may be said to bear the same relation to disease in hot countries that bacteria do to those of temperate regions. And this is due not so much to favorable conditions of the tropics for the parasite itself as for the mosquito, biting fly, or other intermediate host which is a necessity in the life of many of these parasites. The recognition of the importance of protozoa as a cause of disease has been one of the greatest advances in medicine in recent years, and much of future investigation must be in working out the problems incident to this discovery.

A valuable feature of the laboratory work is a weekly practical examination, at which twenty to thirty specimens, gross and microscopical, are set out for identification. This laboratory course is without doubt a most excellent one, and the practical work is supplemented by clear, concise lectures at intervals during the laboratory hours by Dr. C. W. Daniels who is in charge of this part of the course.

Dr. Daniels, like a majority of the teaching staff has seen

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service in the tropics, he having been for several years in the Colonial Medical Service at Demarara in British Guiana. Dr. Daniels holds the position of Medical Superintendent of the hospital and together with his assistant instructor lives in the school building and devotes his entire time to the school and to research work.

The lecture course is carried on by ten lecturers upon as many subjects, embracing the whole field of tropical medicine and surgery, hygiene, special diseases of the skin, eye, ear and mouth, bacteriology and protozoology. These instructors are mostly men of considerable experience in tropical practice, and notably the lectures of Sir Patrick Manson, Drs. Hewlett, Sandwith, Cantlie are of great interest and value. The lecture course as a whole however, leaves something to be desired; with the large number of teachers the courses overlap so that a subject may be presented by two or even more lecturers, while the so called special branches, probably on account of the short time allotted to them are poorly presented. It seems that a consolidation of subjects, with a reduction in the number of lecturers would be to the advantage of the student.

A feature of this lecture course that is worthy of emulation is the great use that is made of the stereopticon. By its use typical examples of disease are illustrated, bacteriological and pathological specimens are shown, and the teaching of medical zoology, to use an all-embracing term, is greatly simplified. To be sure the idea is not new, but it is here carried out to a much greater extent than I have ever seen elsewhere.

Nine years have elapsed since the opening of the school, and during that time over seven hundred students have been in attendance. Of these by far the larger number belong to the Colonial Medical Service, but the Army and Navy services have furnished many students while nearly all of the governments of Europe and America have been represented by their medical officers. Another source from which such a school draws a large patronage is the medical missionary service, which has furnished nearly one hundred students, either attending on their own initiative or at the expense of the various mission boards. Nearly one-third of the students have been physicians who have intended going into private practice in the tropics.

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That special instruction in tropical medicine is not without results, we have only to mention the names of Low, Daniels, Castellani, Bentley, Balfour, and Philip Ross; names familiar to those conversant with the recent literature of tropical medicine. It was a former student of the school, working on the Gambia in Africa, that first found the Trypanosoma gambiense in man, while another student first demonstrated that sleeping sickness was due to this parasite. African tick fever was shown by another student to be due to a spirillum similar to that which causes relapsing fever, while many investigations of lesser importance have been carried out.

In the early days of the school, Drs. Sambon and Low faced the fevers of the Roman Campagna in their efforts to make certain the relationship between mosquitoes and malaria, and since that time, several expeditions have been sent out for the investigation of special diseases. Laboratories for the study of tropical diseases have been recently established by the different Colonial governments throughout tropical Asia and Africa, and among those in charge of these laboratories, the London School of Tropical Medicine and its Liverpool rival are well represented.

The only government aid the school obtains is from the fees for the Colonial officers, and a portion of a research fund contributed by the different Colonies and apportioned by the Colonial office. A few quite liberal benefactions have been received but these have been used in equipment, and the school has therefore no endowment for teaching or research. The fees are therefore necessarily high, amounting to about one hundred dollars for a course.

The importance of tropical medicine has been recognized by Cambridge University which has granted to those completing a course at either the London or Liverpool schools the privilege of taking the examination for its Diploma of Tropical Medicine and Hygiene.

The London school has recently been strengthened by affiliation with the University of London, and the admission of tropical medicine as an alternative subject for the M. D. of that University. At the Christmas holiday distribution of honors of last year, the King conferred an order of knighthood on P. Mitchelli, secretary of the institution, in recognition of his services to the school, and through the school to the country.

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THE BOARD FOR THE STUDY OF TROPICAL DISEASES AS THEY OCCUR IN THE PHILIPPINE ISLANDS.

By CAPTAIN PERCY M. ASHBURN,
MEDICAL CORPS UNITED STATES ARMY.

BY the terms of G.O. 16, W.D., 1906, the Secretary of War appointed a board of medical officers for the study of tropical diseases as they occur in the Philippine Islands. In his annual report for the year 1906, the Surgeon General refers to the board as one of a permanent character and the letter of instructions sent from his office to the board affords corroborative evidence that he regarded it as such, for the board was instructed to elucidate most of the dark spots in tropical medicine.

If the permanent character of the board be conceded there should be an opportunity for every medical officer in the army who has desires in that direction to serve on it. The field of work is so broad that the probability of the board ceasing to exist because of any lack of unsolved problems need not be considered.

Since any and every officer who so desires may at some time be appointed on the board, it behooves all such to take an especial interest in its work for that reason, as well as for numerous others. And, in case not enough officers desire to serve on the board, I may stimulate interest by saying that it is most interesting, pleasant and instructive work, and that the authorities have done all in their power to promote its success. The members of the board are freed from other duties, work under instructions so broad and general as to leave them free to choose their own subjects for investigation and to investigate in such manner, time and place as they see fit. Cordial and generous assistance has been forthcoming whenever requested, from the Commanding General of the Philippines Division, the Surgeon General, the Chief Surgeons of the Division and several depart-

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ments, while various bureaus of the insular government, those of Science, Health and Agriculture, have been cheerfully helpful whenever it lay in their power.

The organization of the board was simplicity itself, the Senior member being the president, the Junior recorder; no further organization being considered necessary.

The plan of work was almost as simple. As stated at the beginning of this article, the board worked under instructions from the Surgeon General's office. When first examined those instructions were discouraging, as they seemed to demand an impossible amount of work. Considering it impossible, we set in to do such work as we could, selecting first that which was nearest to hand. Any subject in tropical medicine can be selected without violating the spirit or the letter of the instructions.

Following this plan and working at the subjects presenting themselves, we started many investigations, most of which, for one reason or another, did not lead far, but all of which were interesting and instructive to the investigators; and some of them were deemed worth recording in separate papers. The work was not divided, i. e., one subject was not studied by one member and another subject by the other, but any subject taken up was investigated by both members, each criticizing and controlling the work of the other, and thus working to agreement on demonstrable facts and obvious deductions, and eliminating as uncertain those on which agreement could not be reached. Another board might find a division of work more satisfactory, though we found our plan thoroughly so.

For the greatest success in its work it is essential that the board should enjoy the friendship and co-operation of as large a body as possible of practicing physicians, in both military and civil life. These we enjoyed in a high degree and through them we obtained valuable help. It is our opinion, however, that our successors will have a greater degree of assistance from the medical men of the army itself, when means are perfected by which the officers outside of Manila can be kept informed of the work the board is doing, and so can take up

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parallel work if they desire, or can be enabled to send to the board cases, specimens or reports throwing light on the subjects.

With this object in view we suggested to the Surgeon General that the quarterly reports of the board, which are merely reports of work undertaken, regardless of the value of the results, should be published in a journal which all the medical officers see, and as the reports are those of an army board, we thought THE MILITARY SURGEON a fitting medium for publication.

The Philippines Medical Association and former Army connections served to get many private practitioners interested, while the officials of the Government were most helpful, both in their official and their personal relations with us.

As the Surgeon General did not deem it wise or expedient to go to large expense in fitting up a laboratory for us we used our office room, the laboratory of the Division Hospital or the laboratory of the Bureau of Science, Philippines Civil Government as was most convenient.

With the last named institution we stood in the relation of "assistants without pay." This relationship conferred on us the right to use the instruments, apparatus, library, etc., of the Bureau, in return for which we were under no obligation further than to publish first in the *Philippines Journal of Science* any paper which might grow out of our work. Our relations with the Bureau were most cordial and quite helpful to us.

We made certain efforts to get in closer touch with officers stationed in the various posts in the provinces, notably by the distribution of reprints and of a circular from the office of the Chief Surgeon, in which the organization of the board was announced and the assistance and co-operation of medical officers requested. As a result of these measures we received some very valuable assistance from such officers, some particular instances being as follows:

Dr. Albert L. Miller, stationed at Imus, sent us four of the five cases of infection with *Filaria philippinensis*, which we had an opportunity to study.

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Captain Edward B. Vedder, Medical Corps, U. S. Army, permitted us to use in an article on dengue the results of the important and valuable blood work that he had done in that disease.

Captain Thornburgh, Captain Schreiner and Captain Gosman also sent us interesting cases.

As showing that such co-operation was not so general and so valuable as it should be I may mention that we have thus far received for transmission to Washington but one specimen from a medical officer outside of Manila, a specimen illustrating intestinal myiasis, sent by Dr. John M. Hewitt.

With general co-operation on the part of medical officers in the islands, the board should be able, in a relatively short time, to send to the Army Medical Museum a collection of pathological specimens, blood smears, intestinal parasites, etc., such as would well illustrate the diseases of the islands and be of great value to the Museum and the Army Medical School.

Another instance may be related in which a general interest on the part of officers in the provinces would probably have been of great value. In June 1906 the Commanding General directed the board to undertake at as early a date as possible a series of experiments to determine whether the surra which so seriously affects the horses in these islands is carried by carabaos and, if so, what is the method of transmission. A screened stable was built for the necessary experiments and the needed horses promised.

Trypanosomiasis of carabaos is reputed fairly common, a government report stating that in the year ending August 1905 almost nine per cent of the carabaos in Manila had trypanosomes in their blood. Yet after June 1906 we were ready and desirous but unable to perform the experiments requested because we were not able to obtain the infected carabao. We did twice locate infected animals, and one of them we bought, but it developed rinderpest the day it arrived in Manila and died. The other was killed and sold for food as soon as the owner learned of its infection and our offer to purchase arrived too late.

It does not seem improbable that we might have found other infected cattle had the medical officers throughout the islands been on the lookout for them.

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The letter of instructions from the Surgeon General's office set forth the objects to be sought by the board as follows:

1. Investigation of diseases.
2. Application of knowledge to prevention and cure of disease.
3. Collection of specimens for Army Medical School and Army Medical Museum.

To these we think a fourth object might well be added viz.: The correlation of the work of investigation of such medical officers as have the time and inclination to co-operate with the board.

The board would have welcomed such co-operation at any time and always given due credit for it. It also stood ready to help at any time, and to the full extent of its ability, in investigations that other medical officers requested, either to initiate them or to carry them on. It was, however, a great saving of time that most of the board's work was done in Manila, and, when practicable, cases to be studied should be sent there for the purpose. The board made a few trips to outside posts but usually found them unprofitable, as the time consumed in such trips was out of all proportion to the part of it that could be spent in actual work; and it would be easily possible for the board to spend all of its time in trips, which might be pleasant but would lead to no useful results.

A summary of the work of the board during its first year of service may serve to show that its tastes were catholic and that no man need think that his cases would not interest it. The subjects investigated embrace the following:

1. *Examination of feces.*
   a. Of 107 healthy men, to determine the percentage of them harboring harmless ameba, 71 per cent positive.
   b. Of 28 insane, to determine the kind of parasitic infection from which they might suffer, with particular reference to infection with *Hymenolepis nana*. 10 had *Entameba coli*. All negative for *Hymenolepis*.
   c. Examination of stools of various sick persons for diagnostic and other purposes.
2. *Examination of blood.*
   A. Human. I. All types of malarial infection.

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II. For filaria, resulting in identification of *Filaria philippinensis*, also blood pictures in filariasis.

III. In non-malarial splenomegalia all resulting negatively as regards the finding of causative organisms and *Leishmania donovani*.

IV. For the organism of dengue, always negative as to visible or cultivable organisms.

V. For the white cell picture of dengue.

VI. For the *Treponema pallidum*. Always negative in blood smears.

VII. For *Treponema pertenuis*. Negative.

VIII. For the cause of certain undetermined fevers. Negative.

IX. Numerous examinations for diagnostic purposes; e.g., blood counts, hemoglobin estimations, etc. Agglutination tests. 9 Malta fever cases found.

B. Horse. For trypanosomes. Positive and negative in different cases.

C. Carabaos and Cattle. For trypanosomes, 112 examinations. Always negative in our personal experience in Manila. Twice found in the provinces, for us, by veterinarians.

D. Monkeys, rabbits, guinea pigs, etc., for various things. Usually negative.

3. *Blood Cultures.*

In dengue. malaria, undetermined fevers, syphilis, yaws, splenomegalia, etc. Results almost uniformly negative except for frequent contaminations.

4. *Examination of urine.*

Usually routine matters.

5. *Examination of skin lesions.*

a. Tropical ulcers. Negative for protozoa and Wright's bodies in smears and sections, except certain cases showing spirochaetae.

b. Ring worms of various kinds. Fungi usually found.

c. Blastomycosis. Lesions studied and treated. Blastomyces isolated and cultivated. Inoculations failed on guinea pig.

d. Yaws. Studied and *Treponema pertenuis* always found.

e. Syphilis. *Treponema pallidum* rarely demonstrated in skin.

f. Other and unknown conditions, including cases of suspected mycetoma. Results negative.

6. *Staining Experiments.*

a. Attempt to differentiate between *B. tuberculosis* and *B. lepra* by staining. Negative.

b. Various experiments in staining protozoa.

7. *Mosquito work.*

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a. Experiments on transmission of dengue by mosquitoes.
b. Observations on life cycle of *Filaria philippinensis* in the mosquitoes.
c. Attempts to infect *Myzomyia ludlowii* with malaria for studying mosquito phase. Negative.
d. Collection and classification (by Mr. Banks) of mosquitoes at Fort William McKinley.
Anophlina. 4 genera and 8 species.
Culicina. 5 genera and 8 species determined.
5 species as yet unidentified.

8. *Collection of specimens.*
a. For Army Medical Museum.
1. Leprosy, 70 specimens.
2. Cholera, 15 specimens.
3. Plague, 1 specimen.
4. Trematode infection. Specimens from cases. (Dr. Musgrave.)
5. Pernicious malaria. Specimens from 1 case. (Captain Peed.)
6. Intestinal myiasis. Specimens from 1 case. (Dr. J. M. Hewitt.)
7. Other unusual intestinal lesions. 2 specimens.
b. For Army Medical School.
1. Blood smears, illustrating the different types and stages of malarial infection.
2. Blood smears showing Filaria philippinensis.
3. Slides showing numerous Balantidium coli.
4. Smears showing *Treponema pertenuis*.

9. *Special reports.*
1. A New Blood Filaria of Man: Filaria Philippinensis.
2. Observations on Filaria Philippinensis and its Development in the Mosquito.
3. Experimental Investigation regarding the Etiology of Dengue Fever, with a General Consideration of the Disease.

INDICATIONS FOR OPERATION ON PERIPHERAL NERVES.

FROM the observation of a series of cases in two German Red Cross hospitals at Tokyo, Henle concludes that in such cases operative interference is indicated to release the nerves or nerve-ends from scar tissues.

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Contemporary Comment.

COMPARATIVE CONDITIONS IN THE RUSSO-JAPANESE WAR.

IN *Roths Jahresbericht*, Dr. Koerting reviews a masterly article of Follenfant, a military observer during the war. Both armies accomplished extraordinary results in hygiene, the Russians excelling the Japanese, according to Follenfant's and Koerting's opinion. Their general health was better and the death of the wounded less. The Russian surgeons were better than the Japanese. Follenfant found, toward the end of 1904, among the Manchurian army, a dozen cases of typhus, about forty cases of anthrax, several hundred cases of typhoid fever, but no dysentery, cholera, plague or wound diseases. This was confirmed by Colonel Hoff of the American army and Dr. Schaefer, from Germany, companions of Follenfant. The maximum strength of the Russian army was 1,262,000. Of such an army one would estimate, in times of peace, to have 600,000 sick, with 30,000 deaths. The Russians, however, had only 287,000 sick, and 5,000 deaths, so that the health of their command was better than in times of peace. Of 113,800 wounded, 2.64 per cent died. In some of the hospitals the percentage was still lower. The Russians lost in battle 34,000, or one to every 3.5 wounded. Twenty-one surgeons were killed, twenty-one wounded and twenty-eight taken prisoners. The sanitary corps had 193 killed, 297 wounded and 47 taken as prisoners. The artillery wounds were all infected, fifty per cent of the gunshot were infected in summer and eighty per cent in winter. 56,717 cases of epidemic disease occurred: of these there were 25,800 intestinal catarrh, 15,800 typhoid, 8,970 dysentery and 4,500 malarial cases. Ten per cent of the typhoid fever cases died. The disease ran a mild course and disappeared completely in the

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winter. This remarkable result was influenced by: 1. The favorable climate. 2. The excellent selection of the soldiers. 3. The long winter. 4. Geographical location. 5. The excellent nursing. 6. Proper clothing. 7. Rest after engagements. 8. Prohibition of the sale of liquor to soldiers. In the matter of nursing, Follenfant especially emphasizes that preserves were not known, the nourishment being as a rule fresh food. Large bakeries, meat markets and merchants of cities provided for that. The value of tea as a drink can not be overestimated and hot water and sugar were never wanting for its preparation. The Russians never ate raw fruit. The transportable kitchen supplied a meat soup of the best quality. The kitchen is an excellent addition for the maintenance of health with troops in the field. In summer, 1905, when Follenfant left the Russian army the health was better than in 1904. Of an army of 1,000,000 men, only 2.4 per cent were in the hospitals. In no European war could the health conditions have been better than with the Russians in 1904-1905. The same impression that Follenfant has pictured, Koerting received, from other literature, and especially from the writings of German observers and Colonel Hoff of the American army, who can not have come to the Russians with a preconceived notion.—FRED J. CONZELMANN.

BALSAM OF PERU IN THE TREATMENT OF WOUNDS.

IN the treatment (Dr. Gebele, *Muenchener Med. Wochenschrift*) of contused and lacerated wounds, especially of the fingers and toes, balsam of peru has proven to be an excellent remedy. It has three distinct actions: 1. Bactericidal; 2. Chemotactic; 3. It envelops the bacteria. Through its influence necrosis of the contused tissue is prevented and it is especially applicable in the conservative treatment of wounds of the fingers and hands. It is indicated in fresh wounds, and all the cavities should be filled with it. Gebele did not observe nephritis in his cases. However, in long continued use of balsam, urine examination should be made in all cases. The combination of Bier's hyperemic method with the balsam treatment gave excellent results.—FRED J. CONZELMANN.

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CEREBRO-SPINAL MENINGITIS.

IN February, 1906 (*Roths Jahresbericht*) an epidemic of cerebro-spinal meningitis occurred in the Bavarian First Train Battalion. Six men were attacked by the disease, one of whom died. The meningococci of Weichselbaum was found in each case. The isolated cocci showed the characteristic morphological, staining, cultural and sero-diagnostic signs of the diplococci of Weichselbaum. In four patients the germs were found in the pharynx. The microscopical examination of the secretion of the naso-pharynx does not suffice and a culture is required. In five cases the meningococci could be cultivated from the blood. The serum of the patients agglutinated the disease producers in a dilution of one-sixtieth and one one-hundredth. Of thirty-nine well men examined, five were found to carry the germ. Of twenty-nine men suffering from catarrh of the upper air passages, four carried the germ. The germ carriers play an important part in the spread of the disease. Of twenty men of the 1st Infantry Regiment, who had in no way been in contact with cases of cerebro-spinal meningitis, not one of them carried the meningococci in the nasal or pharyngeal secretions. According to Westenhoeffer, infection occurs through the respiratory tract. Children first complain of ear disease, from here the infection of the cranial cavity follows. In adults the infection takes place through the sphenoid bone. The hypophysis becomes the seat of the disease at first, and it is a fact that one always finds a perihypophseal infection. Infection may also take place from the pharynx along the course of a nerve. Pus in the nerve sheaths could, however, only be followed to the pharyngeal wall. Acute inflammation of the tonsils is always present. Lymph and blood channels are possible avenues of infection.—FRED J. CONZELMANN.

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Editorial Expression.

A RUSSIAN MEDICAL OFFICER ON RUSSIAN ARMY SHORTCOMINGS.

IN spite of the great advances made by medical sciences, in spite of the great life-preserving and life-saving achievements of sanitary measures undertaken by sanitarians, hygienists, bacteriologists and surgeons, in civil as well as in military life, the medical officer is as yet looked upon as a "non-combatant," and as a comparatively insignificant part of a great fighting machine, in short as a sort of "necessary evil" required by fashion.

Undoubtedly highly-cultured and humane governments have begun to realize the value of a well-organized sanitary service for troops in garrison and in the field and have accorded the representatives of that service the rank and emoluments of officers of the line. This holds especially good for the United States and it is gratifying to us to know that our colleagues in other, less enlightened countries of the old world, have held up the medical department of the United States army as an ideal service for those in it as well as for those it serves, an ideal well worthy of emulation.

While it must be admitted that in this country medical officers are better off in every respect than those in almost all European armies, we cannot truthfully assert, however, that we are accorded all the privileges and emoluments which we deserve. A real autonomy of the medical department does not exist *in praxi*.

In this respect we learn by sad experience. When a war is in progress and more men die of diseases that can be prevented, than from the enemies' missiles, then something is wrong somewhere; either the medical department is inefficient or the com-

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manding officers are to be blamed because they have hampered that service. For whatever shortcomings and blunders occurred during the Spanish-American war, for example, the medical department is blameless. It is hoped that the American government has learned a lesson it is not likely to forget, and the present reorganization of the army medical corps seems to bespeak a brilliant future for an activity that shall be looked upon by all concerned as a godsend.

Since the Spanish-American war a great nation with practically the largest standing, well-disciplined army in the world, commanded by men of excellent reputation as field marshals, has engaged in a war with a nation of an Oriental race, which heretofore had been looked upon as greatly inferior to the Caucasian race. The disastrous outcome for the "white Christians" is too well known. Of course all sorts of explanations of this disastrous result are offered by those who are led by sympathy rather than reason and science.

If we study the reports of the officers of the general staff we get no satisfaction. There is much talk about "heroism," "irresistible forces," "overwhelming numbers," "climatic conditions," "topographical hindrances," etc., etc. Once in a while we read of a complaint of lack of harmony among the higher officers, in other words one commander trying to throw the blame on a comrade's shoulders.

And now we come to the main subject of this article: The truth of the late Russo-Japanese war can be heard only from Russian medical officers. Astounding as this may appear it is an absolute fact nevertheless.

As an example let us briefly cite from a report of the well-known Russian syphilographer Dr. B. Ph. Demick, who for some time was in charge of "general hospital No. 4," at Harbin.

A few explanatory notes may not be amiss. In Russia the common soldier and the subaltern officer knows of but one thing as representing all that is expected of him, viz., his body and soul belong to the Emperor and, therefore, blind obedience to superiors is the sine qua non. What more ideal army can an efficient general and staff ask for? And why was such an army

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defeated? Let us hear what Demick has to say. For frankness his article, which appeared last year in the *Voyenno Medizinsky Journal*, a leading medico-military monthly published in St. Petersburg, it probably stands supreme in Russian official literature. It is indeed a sign of the times when in such a country, ridden by official red-tape and white-washing, a medical man is permitted to raise his thundering voice, accusing the proper authorities, nay the very nation of its defeat.

In his introductory remarks he says: "The unsuccessful war revealed numerous shortcomings in all departments of the million army of Russia. These shortcomings were principally due to our unpreparedness for war, to lack of familiarity with the local conditions of the theater of war, to deficient specialistic knowledge and, in general, to our low culture." The author sharply rebukes the system of bureaucracy which boisterously issued thousands of documents from the "field" and "base" offices, to the just dissatisfaction of the real workers. He boldly says that the chiefs of the sanitary service were suffering from lack of harmony and solidity.

But the mute statistics issued by this fearless observer speak a language that can be heard and understood by all those who want to hear.

The hospital under his charge was open from May 26, 1904, to July 22, 1906, that is to say a little over two years. During that period 28,154 patients were treated, 2,396 of whom were commissioned officers.

As regards the nature of the diseases the following table is remarkable:

Gunshot wounds	225
Typhoid fever	616
Venereal Diseases	26,316
Skin diseases	202
Diverse	795

In reporting interesting case histories especially deaths due to lues, the author ascribes the bad results to the inability to completely cure most gonorrheics to the habitual drunkenness of both officers and soldiers. He takes to task the higher officers

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who permitted in Harbin the existence of cafés which were nothing but brothels of the lowest and most degenerate type.

Had the Russian government been wise enough to so prepare herself for war as to avail herself of the sound advice which men of the stamp of a Demick could have given her—who knows but what she would have been able to defeat a race of physically inferior men. But even the most heroic soldiers avail little when confined in military hospitals suffering from the ravages due to overindulgence at the shrines of Venus and Bacchus.

But even in such armies where a personal sense of honor and preference for moral and physical "cleanliness" is characteristic of the officers and most men, hospitals are unnecessarily filled, a circumstance that could be avoided if the medical department had sufficient authority to see to it that any order emanating from it would be obeyed implicitly.

That time must soon come. Humanity and self-preservation demand it.—G. M. B.

APPENDECTOMY AND MILITARY SERVICE.

IN the *Deutsche Militaerztl. Ztschr.*, Stabsarzt Dr. Braun discusses in detail the number of patients returned to duty as fit for military service after operation for appendicitis. The percentage of patients discharged for disability after successful appendectomy is very high. The author tries to ascertain the cause of this high percentage. He concludes that if the following rules are observed the percentage of disability will be lowered: 1. The soldier should at once report sick if he notices pain in the right abdominal region. 2. Immediate transfer of the patient to the base hospital. 3. Diagnosis made, operate at once. 4. Zig-zag incision. 5. Correction of the scar tissue after healing in cases in which drainage was employed and separate returning of the layers of the abdominal walls.—FRED. J. CONZELMANN.

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Georgia State Capitol.

The Atlanta Meeting.

SUPPLEMENTARY PROGRAM OF THE SEVENTEENTH ANNUAL MEETING OF THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES.

THE fine prospects for a successful meeting of the Association of Military Surgeons at Atlanta continue to be brilliant and attractive. The foreign delegation is steadily increasing in number. The Indian Medical Service will be represented this year by Lieutenant Colonel W. H. W. Elliot, who will be remembered pleasantly by those who attended

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the Buffalo meeting. The Spanish government has issued orders authorizing all medical officers who desire to attend to apply for permission.

The hospitality of our Atlanta friends involves a reception at the Piedmont Driving Club under the auspices of the Fulton County Medical Association, an automobile trip about the beautiful city and suburbs and closes with a good old fashioned barbecue, together with many other lesser entertainments characteristic of southern hospitality.

The affair will open with the usual informal reception at the Piedmont Hotel on the evening of the 12th, on which evening there will also be the regular meeting of the Executive Council.

The first day's proceedings will open at 10:30 o'clock which will give ample time for all to arrive and the following program will be carried out:

Reports of the work of the Association during the year 1907–1908. By the Officers and Committees of the Association.

1. Report of the Executive Council.
2. Report of the Treasurer.
3. Report of the Secretary and Editor.
4. Report of the Literary Committee.
5. Report of the Public Service Medical School Committee.
6. Report of the Committee on Legislation.
7. Report of the Committee of Arrangements.
8. Report of the Necrology Committee.
9. Report of the Enno Sander Prize Medal Board of Award.

The relation of the Military and Naval Forces of the United States to Public Health. By the successful competitor for the Enno Sander Prize.

The usual public meeting will occur on Tuesday evening, the 13th, and the following is a tentative program for the occasion.

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TUESDAY, OCTOBER 13, 1908.

8:00 O'CLOCK P. M.

The Public Meeting.

The general public invited.

The Chairman of the Committee of Arrangements *in the chair.*

Overture - - - - - - - - - - *Orchestra*

Invocation

Music - - - - - - - - - - *Orchestra*

The State of Georgia. - - - By the Governor of Georgia

Music - - - - - - - - - - *Orchestra*

The Georgia State Forces. - By the Adjutant General of Georgia

Music - - - - - - - - - - *Orchestra*

The Medical Profession of Georgia. By the President of the State Medical Society.

Music - - - - - - - - - - *Orchestra*

The Annual Address of the President on "The Suture of Wounds of the Heart." By Colonel *George Tully Vaughan.*

Music - - - - - - - - - - *Orchestra*

Installation of Foreign Delegates. By Major *James Evelyn Pilcher*, Secretary of the Association.

March - - - - - - - - - - *Orchestra*

In addition to the papers contained in the preliminary program published in the last number of THE MILITARY SURGEON, the following will be presented:

Method for Recording the Surgeon's Orders in Hospital. By Former Acting Assistant Surgeon Harold D. Corbusier, U.S.A.

The Card System as Adapted to Property Accounts. By Brigadier General Charles C. Foster, M.V.M.

A description of an admirable solution of the question as worked out in the Medical Department of the Massachusetts Volunteer Militia.

The Organization and Training of the First Aid Corps of the Philadelphia and Reading Coal and Iron Company and A New Model Mine Ambulance. By Major George H. Halberstadt, N.G.Pa.

A New Detached Service Medical Outfit. By Captain Jesse R. Harris, U.S.A.

Service Schools for the Militia. By Captain G. Morgan Muren, N.G.N.Y.

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The Civilian Aid Society in its Relation to the Military Service. By Major James Evelyn Pilcher, late U.S.V.

A review of the work of civilians in aiding the ill and injured in military operations, followed by a discussion of the place of such organizations in peace as well as in war and of the best methods of developing their work, by the Director General of the National Volunteer Emergency Service.

The Organization and Initial Work of the Medical Department when Volunteers are Called into Service. By Major Frederick P. Reynolds, U.S.A.

A Diagram of the Medical Organization, U.S. Army, for Service with a Division; Designed for the Purpose of Instructing the Hospital Corps and to Show Where the American National Red Cross Can be of Assistance in Time of War. By Lieutenant G. H. Richardson, U.S.M.R.C.

Retrospect of Cooperative Work of the Medical Services of the Government. By Surgeon H. W. Austin, P.H.&M.H.S.

A Method of Disposing of Excrementitious Matters, Suitable for Temporary Camps. By Major Herbert A. Arnold, N.G.Pa.

Can be installed the instant camp is established, is sanitary, fly proof and readily portable.

Military Sanitary Problems in the Philippine Islands. By Colonel Louis Mervin Maus, U.S.A.

Brief outline of the physical and climatic conditions of the Philippine Islands. Origin and sociological conditions of the natives. Domestic and municipal sanitation among the Filipinos. Number of troops in the Philippines and nature of service. Barracks, food, clothing and general sanitation. Effects of climate, alcohol, habits and nostalgia on troops serving in the Philippines. Prevailing diseases. Vital and mortuary statistics and their comparison between those of troops serving in the Philippines and at home. Health of native and colored troops as compared with that of white troops. Sanitary measures necessary to secure best results. Ideal barracks for American troops serving in the tropics.

The Field Hospital of the Austrian Red Cross. By Stabsarzt Dr. Johann Steiner, Austro-Hungarian Army.

A sketch of the Red Cross Hospital arrangements in Austria-Hungary by an officer of the War Ministry.

The Origin and Condition of the Peoples who make up the Bulk of our Immigrants and the Probable Effect of their Ab-

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sorption upon our Population. By Medical Director Manly Hale Simons, U.S.N.

Man was evolved from a simian stem in a now sunken continent. The white race arose in Northern Africa. The races should not be crossed, but the crossing of varieties within the race is necessary for its intellectual and physical advancement. Degradation and extinction are inherent and certain in a bad environment. Mental, moral and physical training must be insisted upon to combat these tendencies. The military efficiency and moral force of our population are decreasing. It is the duty of medical men to impress this upon the public and to recommend means to combat the evil.

The Study of Military Hygiene for the National Guard Officer. By Dr. Robert Smart, Former Assistant Surgeon, U.S.A.

Efficiency of an army depends upon efficiency of each department but more particularly upon the Medical Department. The study of hygiene should begin with the unit, hence the importance of physical examination of recruits which is too frequently perfunctory in character. The preventable diseases, necessity of line officers and enlisted men recognizing the care to be taken to prevent them. The study of hygiene should begin with thorough instruction of Hospital Corps, then with officers of the line by whom the enlisted personnel should be instructed. The value of the Army Medical School. A method of practical teaching of hygienic duties to the state officer by the regular when both are encamped together outlined.

Variola Hemorrhagica. By Passed Assistant Surgeon R. E. Ebersole, P.H.&M.H.S.

An account of two cases of this form of smallpox, with deductions as to diagnosis and treatment.

Felon or Whitlow. By Former Acting Assistant Surgeon John Hudson Grant, U.S.A.

We have in felon an infectious inflammation of palmar surface of fingers and thumb, and owing to perpendicular arrangement of the fibers pus readily extends in the finger, that of the little finger and thumb likely to extend to palm and forearm. Apparently of spontaneous origin, but resulting from, perhaps, trivial injury, frequent among men in army service. Diagnosis not easily mistaken; symptoms are locally characteristic and in severe cases constitutional disturbance. Those opening spontaneously not desirable cases; treatment prompt deep incisions, neglect of this for abortive measures lead to loss of function or of hand. Refers to new method of therapy, the opinions of Wright and Douglas and the production of an immunizing substance—protective vaccine.

Papers are also promised by:

Major T. E. Carmody, N.G.Colo.

Major John Adams Metzger, U.S.V.

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News of the Services.

Passed Assistant Surgeon J. F. Anderson, P.H.&M.H.S., ordered to Arundel-on-the-Bay, Md., for special temporary duty.

Lieutenant Colonel W. H. Arthur, U.S.A., appointed member of the Washington Promotion Board.

Lieutenant M. Ashford, U.S.A., ordered from Washington Barracks to the camp of instruction at Fort Benjamin Harrison, to rejoin Co. C, Hospital Corps.

Passed Assistant Surgeon L. P. H. Bahrenburg, P. H. & M. H. S., granted one month's leave.

Lieutenant Edward Bailey, M.R.C., ordered to active duty in the service of the United States and assigned to Fort George Wright.

Surgeon P. H. Bailhache, P.H.&M.H.S., granted twenty days leave.

Captain H. H. Baily, U.S.A., ordered in addition to his present duties at Fort Myer, to make the necessary sanitary inspection of the rooms occupied by the clerical force of the War Department during the absence of Major Paul F. Straub, and appointed member of the board on the horsemanship test of field officers.

Lieutenant Charles L. Baker, M.R.C., assigned to active duty at his present station.

Surgeon C. E. Banks, P.H.&M.H.S., granted twenty days leave.

Lieutenant Fred M. Barney, M.R.C., granted one month's leave.

Captain C. J. Bartlett, U.S.A., granted leave of absence to visit the United States to take effect upon the arrival of the transport *Kilpatrick* and ending September 15.

Assistant Surgeon J. A. Biello, U.S.N., ordered from duty with the Pacific Torpedo Fleet to the Mare Island Naval Hospital.

Lieutenant Colonel H. P. Birmingham, U.S.A., relieved from duty as a member of the Washington Promotion Board.

Passed Assistant Surgeon L. W. Bishop, U.S.N., ordered to the New York Naval Hospital, and to temporary duty at the New York Naval Recruiting Station.

Captain R. M. Blanchard, U.S.A., granted one month's extension of leave.

Captain H. D. Bloombergh, U.S.A., granted twenty days leave.

Surgeon E. S. Bogert, U.S.N., ordered from the Newport Naval War College to the New York Naval Recruiting Station.

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Lieutenant M. H. Bowman, M.R.C., ordered to active duty in the service of the United States.

Medical Director J. C. Boyd, U.S.N., ordered to additional duty in command of the Naval Medical School Hospital.

Lieutenant I. W. Brewer, M.R.C., granted thirteen days leave.

Assistant Surgeon F. H. Brooke, U.S.N., ordered from the *Montgomery* to the Boston Naval Hospital.

Passed Assistant Surgeon E. M. Brown, U.S.N., unexpired portion of sick leave revoked; ordered to the Los Angeles Naval Recruiting Station.

Captain O. G. Brown, U.S.A., granted ten days leave.

Lieutenant Earl H. Bruns, U.S.A., ordered to Fort Monroe upon expiration of leave; ordered from Fort Monroe to Fort Bayard.

Assistant Surgeon C. W. O. Bunker, U.S.N., ordered from the *Arkansas* to the *Montgomery*.

Captain W. E. Butler of the Field Hospital, N.G.N.Y., recently met with a severe accident by a collision with an automobile but is now improving.

Lieutenant Daniel P. Card, M.R.C., ordered to active duty in the service of the United States.

Major W. F. Carter, U.S.A., granted one month's extension of leave; ordered to Fort Myer September 16, for the purpose of undergoing the physical examination and testing his skill and endurance in horsemanship.

Lieutenant G. E. Chamberlain, M.R.C., ordered to active duty in the service of the United States.

Passed Assistant Surgeon Taliaferro Clark, P.H.&M.H.S., ordered to Lebanon, Pa., for special temporary duty.

Captain J. M. Coffin, U.S.A., granted one month's extension of leave.

Passed Assistant Surgeon G. L. Collins, P.H.&M.H.S., commissioned from July 9, 1908.

Captain C. F. Craig, U.S.A., appointed member of the Fort Leavenworth Examining Board vice Captain Bloombergh.

Captain R. M. Culler, U.S.A., ordered from Fort Monroe to Fort Ontario instead of to Fort Logan H. Roots.

Lieutenant W. O. Cutliffe, M.R.C., ordered to Fort McIntosh.

Lieutenant W. H. Dade, M.R.C., granted two months and fifteen days leave.

Lieutenant G. W. Daywalt, M.R.C., ordered from the Depot of Recruits and Casuals, Angel Island, to the Presidio of San Francisco for temporary duty.

Captain M. A. DeLaney, U.S.A., detailed to act as judge at the third annual contest of the First Aid Corps of the Pennsylvania Coal Co. and

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the Hillside Coal & Iron Co., to be held on October 3, at Inkerman, near Scranton, Pa.

Acting Assistant Surgeon J. M. Delgado, P.H.&M.H.S., granted twenty-nine days leave.

Passed Assistant Surgeon P. T. Dessez, U.S.N., unexpired portion of leave revoked; ordered from the *Chicago* to the Las Animas Naval Hospital.

Brigadier General Calvin DeWitt, U.S.A., a distinguished retired medical officer of the Army, died at the home of his son, Captain Wallace DeWitt, Medical Corps U.S.A., September 3, 1908.

Surgeon O. Diehl, U.S.N., ordered from the Philadelphia Navy Yard to the *Charleston* and to additional duty as fleet surgeon of the Third Squadron, Pacific Fleet.

Dr. C. E. Doerr, U.S.A., ordered from Cincinnati to Fort Thomas for temporary duty.

Assistant Surgeon H. L. Dollard, U.S.N., ordered from the *Rhode Island* to the *Albatross*.

Dr. Pascal M. Dowd, U.S.A., ordered from Fort Ontario home to Oswego, N. Y., and report to the Surgeon General for annulment of contract.

Assistant Surgeon J. T. Duhigg, U.S.N., ordered from the Los Angeles Naval Recruiting Station to duty with the Pacific Torpedo Fleet.

Lieutenant C. T. Dulin, M.R.C., ordered to active duty in the service of the United States.

Captain L. C. Duncan, U.S.A., appointed member of a board to examine officers of the Medical Reserve Corps at Fort William H. Harrison.

Acting Assistant Surgeon N. J. Dynan, P.H.&M.H.S., granted one month's leave.

Lieutenant A. H. Eber, M.R.C., relieved from further duty in the Philippines and upon expiration of present leave ordered to Fort De Soto.

Passed Assistant Surgeon Harvey G. Ebert, P.H&M.H.S., commissioned from July 9, 1908.

Lieutenant Colonel W. H. W. Elliot, I.M.S., who was the delegate of the Indian Medical Service at the Buffalo meeting, has been detailed by the government of India to represent it at the Atlanta meeting.

Passed Assistant Surgeon C. F. Ely, U.S.N., ordered from the *Hartford* to the *Charleston*.

Acting Assistant Surgeon G. D. Fairbanks, P.H.&M.H.S., granted twenty days leave.

Assistant Surgeon C. M. Fauntleroy, P.H.&M.H.S., ordered to Mobile, Ala., for special temporary duty and return to New Orleans, La.

Captain Peter C. Field, U.S.A., ordered to Fort Benjamin Harrison for temporary duty.

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Captain J. H. Ford, U.S.A., appointed member of a board of medical officers for the examination of officers of the Medical Reserve Corps at Fort William H. Harrison.

Passed Assistant Surgeon M. H. Foster, P.H.&M.H.S., granted twenty-one days leave.

Assistant Surgeon T. G. Foster, U.S.N., ordered from the Newport Naval Training Station to the Newport Naval Hospital.

Acting Assistant Surgeon C. M. Frissell, P.H.&M.H.S., granted ten days leave and eight days leave without pay.

Surgeon M. F. Gates, U.S.N., ordered from the *Charleston* to the Philadelphia Navy Yard.

Lieutenant W. R. S. George, M.R.C., ordered from Fort Greble to Fort Totten.

Assistant Surgeon H. A. Giltner, U.S.N., appointed from September 10, 1908.

Passed Assistant Surgeon M. W. Glover, P.H.&M.H.S., appointed delegate to the meeting of the Washington State Medical Association at Walla Walla, Wash.

Captain G. H. R. Gosman, U.S.A., ordered from Fort Morgan to Fort Barrancas.

Lieutenant Frank C. Griffis, M.R.C., order to Fort Benjamin Harrison revoked.

Dr. A. M. Guittard, U.S.A., ordered home to Alliance, Ohio, for annulment of contract.

Assistant Surgeon M. C. Guthrie, P.H.&M.H.S., granted one month's leave.

Lieutenant C. H. Halliday, M.R.C., ordered from Fort Sam Houston to Fort Fremont.

Lieutenant Francis A. Halliday, M.R.C., ordered before the Washington Examining Board for examination; retired from active service September 13, 1908.

Lieutenant L. H. Hanson, U.S.A., ordered to Fort Sam Houston.

Acting Assistant Surgeon G. G. Hart, U.S.N., ordered from the *Albatross* home to wait orders.

Lieutenant H. E. Hasseltine, M.R.C., granted two months leave.

Assistant Surgeon G. S. Hathaway, U.S.N., ordered from the Boston Naval Hospital to Washington for examination for promotion and then to wait orders; ordered to duty in connection with fitting out the *Wyoming* and to duty on board that vessel when commissioned.

Assistant Surgeon A. B. Hayward, U.S.N., ordered from the Pittsburg Marine Recruiting Station to the Dallas Naval Recruiting Station.

Medical Director L. G. Heneberger, U.S.N., commissioned from September 2, 1908.

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Lieutenant O. F. Henning, M.R.C., ordered to accompany the command at Fort Sheridan to Fort Benjamin Harrison.

Assistant Surgeon R. B. Henry, U.S.N., appointed from September 10, 1908.

Passed Assistant Surgeon W. C. Hobdy, P.H.&M.H.S., granted fourteen days leave and ordered to the Mare Island Naval Station for special temporary duty.

Passed Assistant Surgeon W. S. Hoen, U.S.N., ordered from duty as assistant to the Inspector in charge of the 3rd Lighthouse District, Tompkinsville, N.Y., to the New York Naval Hospital for treatment; ordered to duty with flotilla of Lighthouse vessels en route to Pacific Coast.

Passed Assistant Surgeon John M. Holt, P.H.&M.H.S., appointed delegate to the meeting of the Washington State Medical Association at Walla Walla, Wash.; granted sixteen days leave.

Lieutenant G. B. Jones, M.R.C., ordered from Fort George Wright to Fort Benjamin Harrison.

Lieutenant H. W. Jones, U.S.A., granted three months leave to take effect about January 16, 1909, upon the arrival of the transport *Buford* at Manila; he is authorized to return to the United States via Asia and Europe.

Surgeon P. C. Kalloch, P.H.&M.H.S., ordered to the Portland, Me., Marine Hospital for special temporary duty and return to the Portland, Maine, Quarantine Station.

Acting Assistant Surgeon H. W. Keatley, P.H.&M.H.S., granted twenty-seven days sick leave.

Major F. R. Keefer, U.S.A., ordered from the Presidio of Monterey to San Francisco on or before September 10, for duty as acting chief surgeon of the Department of California during the absence of Colonel George H. Torney.

Acting Assistant Surgeon William Keiller, P.H.&M.H.S., granted twenty-three days leave.

Captain E. D. Kilbourne, U.S.A., ordered from Fort Brady to San Francisco, thence to the Philippines November 5, 1908.

Major Thomas J. Kirkpatrick, U.S.A., granted fourteen days leave.

Lieutenant F. T. Koyle, M.R.C., ordered to active duty in the service of the United States.

Assistant Surgeon M. E. Lando, U.S.N., ordered from the Minneapolis Naval Recruiting Station to Washington for examination for promotion and then to wait orders.

Assistant Surgeon H. H. Lane, U.S.N., ordered from duty in the department of government and sanitation, Isthmian Canal Zone, Panama, to the Naval Medical School for instruction.

Captain Leon T. LeWald, U.S.A., granted twenty-five days leave.

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Passed Assistant Surgeon J. D. Long, P.H.&M.H.S., ordered to Los Angeles, Cal., for special temporary duty.

Passed Assistant Surgeon L. L. Lumsden, P.H.&M.H.S., appointed member of a promotion board vice Passed Assistant Surgeon A. M. Stimson.

Major Charles Lynch, U.S.A., detailed to act as judge at the third annual contest of the First Aid Corps of the Pennsylvania Coal Co. and the Hillside Coal & Iron Co., to be held on October 3, at Inkerman, near Scranton, Pa.

Medical Director W. A. McClurg, U.S.N., ordered home from duty as a member of the Washington Medical Examining Board.

Surgeon A. M. D. McCormick, U.S.N., ordered from the Naval Academy to the Baltimore Naval Recruiting Station.

Lieutenant Thomas B. McCown, M.R.C., assigned to active duty at his present station.

Passed Assistant Surgeon W. N. McDonnell, U.S.N., ordered from Camp Perry, Ohio, to the Minneapolis Naval Recruiting Station.

Assistant Surgeon E. G. Mackenzie, U.S.N., ordered from the New York Naval Hospital to the Naval Medical School for instruction.

Passed Assistant Surgeon N. T. McLean, U.S.N., unexpired portion of leave revoked; ordered from the New Orleans Naval Station to the *Dolphin*.

Acting Assistant Surgeon H. B. McMurdo, U.S.N., ordered from the San Francisco Naval Training Station to the Naval Medical School for instruction.

Passed Assistant Surgeon Herbert M. Manning, P.H.&M.H.S., commissioned from July 9, 1908.

Surgeon E. H. Marsteller, U.S.N., retired upon his own application after thirty years service, September 15.

Major C. F. Mason, U.S.A., appointed member of a Pittsburg, Pa., examining board for the purpose of examining the plant for the purification of water by ozone now in operation at the Homeopathic Hospital in that city.

Colonel Louis M. Maus, U.S.A., is proposed for appointment again as Commissioner of Public Health of the Philippines by the *Manila Cabelenews-American* which refers in most complimentary manner to his former administration of that department.

Passed Assistant Surgeon H. A. May, U.S.N., ordered from the Norfolk Naval Hospital to duty with light-house vessels en route to the Pacific coast.

Passed Assistant Surgeon G. M. Mayers, U.S.N., granted three months sick leave when discharged from treatment at the Naval Medical School Hospital.

Lieutenant A. L. Miller, M.R.C., granted twenty days leave.

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Passed Assistant Surgeon O. J. Mink, U.S.N., ordered from the Chicago Naval Recruiting Station to the Naval Medical School.

Assistant Surgeon C. L. Moran, U.S.N., ordered from the Dallas Naval Recruiting Station to the Naval Medical School for instruction.

Surgeon J. A. Murphy, U.S.N., ordered to temporary duty on board the *Franklin;* ordered from the *Dolphin* home to wait orders.

Assistant Surgeon W. M. Nickerson, U.S.N., retired, died at Fort Collins, Colo., August 19, 1908. He was a member of the Association of Military Surgeons.

Passed Assistant Surgeon J. H. Oakley, P.H.&M.H.S., ordered to take temporary charge of the Port Townsend Marine Hospital.

Assistant Surgeon E. H. H. Old, U.S.N., ordered to the Norfolk Naval Hospital.

Captain R. U. Patterson, U.S.A., granted leave of absence to visit the United States to take effect upon the arrival of the transport *Kilpatrick* and ending October 15.

Captain G. P. Peed, U.S.A., ordered from Fort Ontario to Fort Monroe.

Medical Inspector H. T. Percy, U.S.N., commissioned from September 2, 1908.

Assistant Surgeon J. R. Phelps, U.S.N., ordered from the Boston Naval Hospital to the Naval Medical School for instruction.

Captain W. W. Quinton, U.S.A., granted one month's sick leave.

Lieutenant M. A. Reasoner, U.S.A., granted twenty-four days leave.

Assistant Surgeon E. U. Reed, U.S.N., ordered from the Mare Island Navy Yard to the San Francisco Naval Training Station.

Lieutenant Colonel Charles Richard, U.S.A., ordered to Fort Myer September 16, for the purpose of undergoing the physical examination and testing his skill and endurance in horsemanship.

Acting Assistant Surgeon H. B. C. Rinmer, P.H.&M.H.S., granted fourteen days leave.

Captain T. L. Rhoads, U.S.A., orders for examination for promotion at Manila revoked.

Lieutenant E. E. Roberts, M.R.C., ordered from Fort Logan H. Roots to Fort Sill.

Passed Assistant Surgeon Norman Roberts, P.H.&M.H.S., commissioned from July 9, 1908.

Passed Assistant Surgeon S. S. Rodman, U.S.N., unexpired portion of leave revoked; ordered to the Chicago Naval Recruiting Station.

Passed Assistant Surgeon T. W. Salmon, P.H.&M.H.S., commissioned from July 9, 1908.

Passed Assistant Surgeon J. W. Schereschewsky, P.H.&M.H.S., granted one month's leave; granted one month's extension of leave.

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Lieutenant Ferdinand Schmitter, U.S.A., ordered to Fort Logan H. Roots.

Acting Assistant Surgeon Louis Schwartz, P.H.&M.H.S., granted twenty-one days leave.

Acting Assistant Surgeon J. T. Scott, P.H.&M.H.S., granted one month's leave.

Assistant Surgeon F. E. Sellers, U.S.N., ordered from the *Nevada* to the *Texas*.

Major H. A. Shaw, U.S.A., ordered to Fort Myer, September 16, for the purpose of undergoing the physical examination and testing his skill and endurance in horsemanship.

Lieutenant J. M. Shepherd, M.R.C., granted one month's leave.

Captain E. D. Shortlidge, U.S.A., granted fifteen days leave; resignation accepted September 15, 1908.

Captain J. F. Siler, U.S.A., detailed to act as judge at the third annual contest of the First Aid Corps of the Pennsylvania Coal Co. and the Hillside Coal & Iron Co., to be held on October 3, at Inkerman, near Scranton, Pa.

Acting Assistant Surgeon A. N. Sinclair, P.H.&M.H.S., granted twenty-five days leave.

Passed Assistant Surgeon Frederick C. Smith, P.H.&M.H.S., commissioned from July 9, 1908.

Acting Assistant Surgeon F. E. Smith, P.H.&M.H.S., granted one month's leave.

Captain Cary A. Snoddy, M.R.C., honorably discharged from the service of the United States.

Lieutenant H. McC. Snyder, M.R.C., ordered from temporary duty at Fort Rosecrans to the San Francisco General Hospital.

Medical Inspector J. M. Steele, U.S.N., ordered home from the Portsmouth Navy Yard.

Assistant Surgeon C. F. Sterne, U.S.N., ordered from the New York Naval Hospital to the Naval Medical School for instruction.

Surgeon W. G. Stimpson, P.H.&M.H.S., ordered to Tatoosh Island, Wash., for special temporary duty and return to Port Townsend, and granted ten days leave.

Passed Assistant Surgeon A. M. Stimson, P.H.&M.H.S., ordered to Los Angeles, Cal., for special temporary duty.

Surgeon G. W. Stoner, P.H.&M.H.S., ordered to Gowanda, Black Rock, Niagara Falls, N.Y., and Detroit, Mich., for special temporary duty.

Passed Assistant Surgeon Ernest A. Sweet, P.H.&M.H.S., commissioned from July 28, 1908.

Captain William H. Tefft, U.S.A., ordered from Washington to Cuba.

Acting Assistant Surgeon M. C. Terry, P.H.&M.H.S., granted one month's leave.

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Colonel George H. Torney, U.S.A., ordered from San Francisco to Atascadero Ranch, Cal., for duty in connection with laying out camp and sanitation of same.

Dr. C. A. Treuholtz, U.S.A., granted one month's extension of leave.

Lieutenant George Trotter-Tyler, M.R.C., ordered from Fort Monroe to Fort Fremont for temporary duty.

Assistant Surgeon H. W. B. Turner, U.S.N., ordered to the Naval Medical School Hospital.

Passed Assistant Surgeon C. W. Vogel, P.H.&M.H.S., granted one month's leave and ordered to the Hygienic Laboratory for temporary duty.

Acting Assistant Surgeon M. L. Volk, P.H.&M.H.S., appointed September, 2, 1908, and ordered to the Reedy Island Quarantine Station.

Acting Assistant Surgeon T. D. Walker, P.H.&M.H.S., granted sixteen days leave and twenty-six days leave without pay.

Acting Assistant Surgeon W. S. Walkley, P.H.&M.H.S., granted eleven days leave.

Surgeon E. Wasdin, P.H.&M.H.S., granted fifteen days extension of leave.

Acting Assistant Surgeon Harvey J. Watson, P.H.&M.H.S., granted one month's leave.

Captain W. D. Webb, U.S.A., granted four months leave.

Captain Frank W. Weed, U.S.A., granted one month's leave.

Lieutenant Frank M. Wells, M.R.C., ordered to active duty in the service of the United States.

Medical Director H. Wells, U.S.N., ordered from the New York Naval Recruiting Station to the Portsmouth Navy Yard and to additional duty in command of the Naval Hospital at that yard.

Lieutenant C. I. Wertenbaker, M.R.C., ordered from Madison Barracks to Fort Wadsworth.

Surgeon C. P. Wertenbaker, P.H.&M.H.S., granted fourteen days instead of one month's leave, and ordered to New York for special temporary duty; appointed delegate to the meeting of the International Congress on Tuberculosis.

Surgeon W. M. Wheeler, U.S.N., ordered to the New York Navy Yard.

Dr. Joseph H. Whiteley, U.S.A., granted eighteen days leave.

Acting Assistant Surgeon L. C. Whitside, U.S.N., ordered from the Newport Naval Hospital to the Naval Medical School for instruction.

Lieutenant Elsworth Wilson, M.R.C., ordered from the Department Rifle Range, Cal., to Fort Rosecrans for temporary duty.

Acting Assistant Surgeon J. G. Wilson, P.H.&M.H.S., granted ten days leave.

Acting Assistant Surgeon Richard Wilson, P.H.&M.H.S., granted one month's leave and fifteen days leave without pay.

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Major W. H. Wilson, U.S.A., ordered to Fort Myer, September 16, for the purpose of undergoing the physical examination and testing his skill and endurance in horsemanship.

Major F. A. Winter, U.S.A., ordered to Fort Myer, September 15, for the purpose of undergoing the physical examination and testing his skill and endurance in horsemanship; appointed member of the board on the horsemanship test of field officers.

Medical Director J. C. Wise, U.S.N., ordered from command of the Naval Medical School to duty as a member of the Washington Naval Examining and the Washington Naval Medical Examining Boards.

Captain Frank T. Woodbury, U.S.A., granted fifteen days extension of leave.

Major Charles E. Woodruff, U.S.A., granted three months leave.

Surgeon G. B. Young, P.H.&M.H.S., ordered to Milwaukee, Wis., for special temporary duty.

THE NAVAL GENERAL HOSPITAL AT LAS ANIMAS.—The name of the naval hospital for tuberculosis hitherto known as New Fort Lyon, Colo., has been changed to read the naval general hospital at Las Animas, the military title being unsuited for a naval institution.

THE EXAMINATION OF CANDIDATES FOR THE ARMY MEDICAL CORPS.—All the twenty-eight boards before whom candidates for appointment to the Medical Corps of the Army appeared Aug. 3 in the various large posts throughout the country have reported to the Surgeon General. The total number of applicants was 151, of whom three withdrew before the invitations to take the examination were sent out. The whole number of sets of questions forwarded was 150 and the number of candidates invited to take the examination was 149, Twelve declined; eight failed to appear, and 128 were examined. The physical examination threw out forty-one and four withdrew from the professional examination, so that the number that actually took the examination finally was eighty-three and of these twenty were successful. The examination on the whole was a notable one, being the largest in many years.

STATUS OF OFFICERS OF THE ARMY MEDICAL RESERVE CORPS.—A contract surgeon of the Army who accepts a position as first lieutenant in the medical reserve corps has his status completely changed, and, it is held, he has severed any connection with his early status as a contract surgeon. Any leave that he may have obtained as a contract surgeon ceases since that leave appertained to his status as a contract surgeon and he has voided that status and assumed another. It is held that from the moment a lieutenant of the medical reserve corps accepts active duty, his status is that of an officer appointed to the Army who has accepted his appointment and that the question of leave or delays in joining would be the same as is the case with an officer of any other position in the regular establishment.

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AMERICAN SANITATION IN THE PHILIPPINES.—The Manila *Times* thinks that it is only by reason of the great distance of the Philippines from the United States that the great sanitary work of the American health officers in the archipelago does not figure as prominently in the home papers as does the commendable work of the force under Colonel William C. Gorgas in the Canal Zone. Says the *Times:* "When the actual record of accomplishment is considered, the people of the United States have as much if not more right to feel proud about what has been wrought in their farthest outpost. Thus this last year, 1907, the general mortality in Panama was 41.24 per 1,000, while in Manila it was only 36.91. The same year, also, the death rate among Americans in Panama was 16.71 per 1,000, while here it was only 9 and the year preceding it was only slightly over 5. When it is considered that much larger sums are being spent in health work in Panama and that greater facilities are put at the disposal of the board of health, and further, that the conditions surrounding Americans are practically the same in that they frequently return to the United States for recuperation or when affected by some serious but not immediately dangerous ailment, the advantage seems to lie altogether with the Philippines."

EXAMINING BOARDS FOR THE ARMY MEDICAL RESERVE CORPS.—The following boards have been appointed for the examination of candidates for the Army Medical Reserve Corps at the locations specified. New York City: Lieutenant Colonel Charles Richard, Major W. H. Wilson, Captain E. P. Wolfe; Washington, D. C.: Major W. D. McCaw, Captain J. B. Huggins, Lieutenant J. R. Barber; Columbus Barracks: Major H. C. Fisher, Captain S. M. DeLoffre, Captain L. J. Owen; Jefferson Barracks: Major A. E. Bradley, Captain R. N. Winn; Omaha, Neb.: Lieutenant Colonel W. B. Davis: Fort Leavenworth: Major E. L. Munson; Fort McKinley: Captain C. W. Farr; Key West Barracks: Captain J. D. Heysinger; New Orleans, La.: Major W. P. Chamberlain; Fort Ontario: Captain G. P. Peed; St. Paul, Minn.: Major F. P. Reynolds; Fort Meade: Major J. S. Kulp; Fort Sill: Major W. F. Lewis; Presidio General Hospital, San Francisco: Major E. R. Schreiner; Presidio of Monterey: Major F. R. Keefer; Vancouver Barracks: Major A. N. Stark; Ancon, Canal Zone, Panama: Major C. C. McCulloch, Jr.

THE PAY OF THE HOSPITAL CORPS.—An officer of the Army Medical Corps writes to the *Army and Navy Journal* a valuable suggestion as to the pay of the Hospital Corps, which embodies also a still more valuable suggestion as to that body. The absurdity of an Army Staff Corps with no commissioned officers, such as is the Hospital Corps, must have struck many officers. The propriety of making the Hospital Corps simply the enlisted portion of the Medical Corps is equally apparent. In connection with this might also be remarked the cumbersomeness of the present titles of the Hospital Corps such as "Sergeant, First Class, Ebenezer

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Hiscock, Hospital Corps." The communication is: "I have been in hopes that some one would evidence a desire to put a quietus upon the nefarious scheme recently seen in print to reduce the pay of the privates of the Hospital Corps. The desirability of establishing a superior or warrant grade in the Hospital Corps is evident to all, but to do so at the expense of the already unfortunate private is heartless and is like taking milk away from sick kittens. The Hospital Corps has already received its death blow by the recent pay schedule, and while a dollar a month less may not be much, it is over six per cent of the pay of a private, and should not be handed out to pay a seventy-five-dollar-a-month man. I would suggest the following rates of pay: Private Medical Corps, $18; private, first class, $20; corporal, $24; sergeant, $36; sergeant, first class, $50; sergeant major, $75. The latter grade to be appointive by severe examination and not purely by seniority among the sergeants, first class."

DELEGATES TO THE SEVENTEENTH ANNUAL MEETING.—Up to the date of the publication of this issue of THE MILITARY SURGEON the following nations and states have named delegates to the Atlanta meeting of the Association:

Great Britain: Colonel W. G. Macpherson, R.A.M.C.

India: Lieutenant Colonel W. H. W. Elliot, I.M.S.

Mexico: Colonel Alejandro Ross, Mexican Army.

Portugal: Lieutenant Colonel Jose Barbosa Leao.

Arkansas: Major J. C. Minor.

Mississippi: Dr. Charles Le Barron, Dr. H. C. Kent, Dr. John M. Stanley, Dr. J. T. McLean.

Missouri: General Frank J. Lutz, Colonel Daniel Morton, Major C. E. Wilson, Major E. R. Churchill, Major Harry E. Ferrell, Major Henry L. Walker, Major Oliver C. Gebhart, Captain W. E. Montgomery, Captain Arthur C. Kimball, Captain Emmett Ballard, Captain E. E. Holtzen, Captain J. B. Luten, Lieutenant E. W. Slusher, Lieutenant Floyd E. Spencer, Lieutenant Louis H. Dandurant, Lieutenant A. V. McArthur, Lieutenant Henry M. Moore, Lieutenant B. W. Hays, Lieutenant J. H. McCoy, Lieutenant Vincil C. Williams, Lieutenant Thomas Redmond, Lieutenant Louis T. Pim.

New Mexico: Dr. James A. Massie, Dr. John F. Pearce. Dr. H. M. Smith, Dr. S. A. Milliken.

Oregon: Dr. Charles T. Chamberlain, Dr. Joseph D. Sternberg, Dr. F. C. Brosius, Dr. W. L. Cheshire, Dr. W. E. Carll, Dr. M. B. Marcellus, Dr. William H. Byrd, Dr. C. C. McCornack, Dr. R. E. L. Holt.

Vermont: Dr. G. C. Berkley, Dr. G. R. Anderson, Dr. J. H. Dodds, Dr. W. E. Putnam.

Virginia: Major Junius F. Lynch, Major James W. Henson, Major W. L. Old, Major A. T. Finch, Major Truman A. Parker, Captain J. Fulmer Bright.

West Virginia: Major C. C. Hogg, Major Z. T. Kalbaugh, Captain Alonzo Andrews, Captain Victor H. Dye, Captain William A. McMillan, Captain A. J. Lyons, Captain J. E. Robins, Lieutenant V. A. Selby.

Wyoming: Colonel William A. Burgess.

In addition to the foregoing, the governments of Ecuador, San Salvador and Turkey have indicated their intention of sending delegates, but have not as yet announced their names.

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Current Literature.

THE JAPANESE NAVY IN 1905.*

THE annual report of the Imperial Japanese Navy for 1905 appears in English as heretofore and again excites admiration of the enterprise of our neighbors across the Pacific in making their work known in this manner throughout the English speaking world. The statistical information furnished is very complete, comprising an enormous mass of tabulation expressed in great detail with much evident accuracy and comprehending all phases of the medical work of their service.

INTERNATIONAL CLINICS.†

IN the second volume of the eighteenth series the International Clinics, already so highly regarded for its sterling merit, continues its successful career in the presentation of interesting articles upon treatment, medicine, surgery, gynecology, ophthalmology, dermatology, orthopedics, pediatrics and pathology. All of its contributions are authorative, valuable, interesting and creditable.

BORDERLAND STUDIES.‡

THIS interesting collection of professional papers includes fourteen of the most interesting and attractive addresses and communications for which their author is so well known. As a book of entertainment, as well as information, it should meet with widespread acceptance.

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*Annual Report of the Health of the Imperial Navy for the Year 1905. 8vo; pp. 177. Tokyo, 1908.

†International Clinics. *Eighteenth Series, Vol. II.* Edited by W. T. LONGCOPE, M. D. 8vo; pp. 304. Philadelphia, J. B. Lippincott Co., 1908.

‡Borderland Studies. Vol. II. By GEORGE M. GOULD, M. D., 8vo. pp. 311. Philadelphia, P. Blakiston's Son & Co., 1908.

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VOL. XXIII, No. 5. NOVEMBER, 1908.

THE MILITARY SURGEON

Enno Sander Prize Essay

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS EXPRESSED IN THEIR CONTRIBUTIONS.

THE RELATION OF THE MILITARY AND NAVAL FORCES OF THE UNITED STATES TO PUBLIC HEALTH.

BY WILLIAM COLBY RUCKER, M. A., M. D.,

PASSED ASSISTANT SURGEON IN THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.

THE last half century has been the scene of tremendous progress in medicine; surgery has ceased to be a barber craft; internal medicine has been established on the firm foundation of modern pathology; bacteriology has taken its position among the sciences; and the product of this unparalleled advance, preventive medicine, has been born. The part which has been played by the medical men of the military and naval forces in this stirring drama is too little recognized, partly because of their own modesty and also because of the fact that too often

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military and naval association has been quite covered by their position in the medical world.

The foundation of Darwin's great work was laid while he was a naval surgeon, and had he not refused a second tour of sea duty after his first two years' cruise, he would probably have remained a naval surgeon all his days. That first, and for him the last, cruise was the beginning of marine biology as we now know it, and not only paved the way for his great accomplishments of later years, but also added an impetus to histology and indirectly to cellular pathology.

Koch, the father of modern bacteriology, discovered the cause of anthrax while an obscure surgeon in the German army stationed in the remote town of Wollenstein and thus made the beginning of that wonderful work which was to crown his later years. His accomplishments did more to advance the cause of public health than those of perhaps any man now living, and these saw their first fulfillment in the sanitary reforms which he worked in the German army. When he devised new means of bacterial staining and cultivation and made the announcement in 1882 of the finding of the bacillus tuberculosis, he made the first really great advance in the study and the control of the great white plague. His discovery of the cholera vibrio placed another weapon in the hand of sanitary science.

While stationed in Constantina, Laveran saw, on the 6th of November, in 1880, spherical pigmented bodies in the blood of a patient suffering with malaria. These he believed were the cause of the disease, and though several years of tenacious labor on his part were necessary to convince a scoffing scientific world, he at last won his battle and proved absolutely the etiological relation of the hematazoa malariae to that disease. Not only was this a world victory in that it made the diagnosis of the disease accurate, but it also opened up a new field of biology and gave new hope to preventive medicine.

This work, however, was not completed until another army surgeon, Ross, working on the mosquito theory evolved by Manzon, followed the life cycle in the body of the mosquito.

It is a loss to military medicine that it cannot claim Don

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Carlos Finlay, whose brilliant hypothesis of the mosquito as the infecting vehicle of yellow fever formed the basis of Reed's great work. It is, however, to the lasting glory of our craft, if such our profession may be called, that it was one of our number who, by a series of careful yet dramatic experiments, placed what had before been theory only, in the category of fact.

These are but a few of the pioneers who have blazed new trails to a better national health, to a higher standard of physical efficiency for the nation. What shall we say of those who have applied these basic principles and by their thorough trial on a large scale proved their worth both as eradicative and preventive measures? The work of Wood, Gorgas, Glennan, Carter, White, Keen and Blue have not only rid whole cities and countries of "the pestilence that walketh in darkness and striketh at noonday," but they have awakened in the mind of the general public the belief that epidemics are not a visitation from God, but are wholly unnecessary offerings on the altar of ignorance and perhaps commercial greed. The day is not far off when wealth will no longer be placed before health and when a campaign such as that of Ashford and King in Porto Rico and of White in New Orleans will arouse the plaudits of the nation like a great military or naval victory in human warfare. Perry, Strong and Heiser and a thousand other medical officers did more to safeguard the public health in the Philippine Islands and to advance the study of tropical medicine than had been done in the previous hundred years. It should be remembered, however, that in the Philippine Islands the work was begun with a clean slate. While the native prejudices were extreme, they did not enter materially into the problem, because at the time of the beginning of public health work in the Islands they were under military control, and it was possible to enforce sanitary measures until the people should become sufficiently educated so that they might be left to the argument of reason rather than that of force. In the United States, however, the problem is a very different one and must be approached in a different way.

The recitation of the great accomplishments of our guild is unnecessary save to bring out the fact that all of the really great

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discoveries in sanitary science and all of the far reaching applications of the basic principles derived from these discoveries have been made by medico-military men. In other words, these deeds have been accomplished under the direction and with the assistance of the Federal Government. At first glance it would seem as though the Military and Naval forces of the United States, existing for the purpose of the protection of the nation from foreign foe, would not be concerned with the preservation of the health of the nation from its enemies in the form of disease. When we consider, however, the debt which preventive medicine owes to the military medical men of the world, we are struck with the fact that many of the most important discoveries with regard to epidemic diseases and their prevention have been made by medical officers. The work of Laveran and Reed alone is sufficient to establish this fact. The relation of the military and naval forces of the United States to public health is therefore of the utmost importance, not only because of the achievements of the past, but also because of the gigantic possibilities of the future.

The last census shows that the annual death rate in the United States is one million five hundred thousand, in other words, one eightieth of the population die every year. In a recent address Dr. William H. Welch, professor of Pathology in Johns Hopkins University, made the statement that, "the death rate can probably be cut in two if adequate measures, which are well within the possibilities of realization are inaugurated." That is to say, three quarters of a million of citizens may be saved every year if adequate measures be inaugurated, and conversely, just so long as the inauguration of these measures is delayed, seven hundred and fifty thousand lives are being wantonly sacrificed annually.

What are these measures? Is their inauguration practical at the present time? To whom should be intrusted the task of their administration?

The first question finds its answer in a resolution passed by the Ohio State Legislature at its last session, proposing to vest in the Federal Government the right to perform the duty of safe-

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guarding and improving our national health and urging Congress "to create and establish a National Bureau of Health and endow it with power and funds commensurate with the highly important duties with which it will be entrusted."

We have seen in the foregoing brief resume of the discoveries and achievements of preventive medicine that those workers who succeeded in the fullest measures were those who received the moral and financial assistance of their national governments. At no time has any great progress come from any individual working solely in his individual capacity. Finlay, the great prophet of yellow fever, worked alone for twenty years and failed to convince the world of the correctness of his brilliant theory. Koch achieved success from the beginning—he was a German army surgeon and was subsequently subsidized by the Reichstag; Ross, of the Royal Army Medical Corps of England succeeded; Reed, Gorgas, and Keen, all of our army, were successful; and Carter, White and Blue, of the United States Public Health and Marine Hospital Service, each fought and won his battle against a scourge. These victories are national achievements, yes, world achievements, but they were accomplished as only such great acts can be, with the backing of the national government.

The first measure then is the placing of the right to combat disease in the hands of the Federal Government. The stumbling block which has heretofore and still impedes progress in this direction is the doctrine that health powers are a part of the rights of a state and must be respected as such and preserved inviolate. It was only after years of tedious legislation that the present quarantine service has been organized, and even now several important states on the Atlantic seaboard cling with childish tenacity to their quarantine rights. When the United States made its first definite attempt to enact a quarantine law violent objections were opposed. The colonies since 1700 had adopted acts looking to the prevention of the introduction of epidemic diseases, but a jealous regard for the rights of the individual state, fostered by the same spirit of grasping commercialism which exists to-day, prevented the enactment of laws placing the quarantine powers in the hands of the general government.

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It was found that the port which applied the minimum quarantine restrictions and was thereby willing to stake its health against commercial prosperity by lax administration of its barriers against disease, got the business, and attracted shipping interests. Should a pestilence be introduced through this misguided practice, the disease was carefully concealed. In fact, in many places a health officer's ability to hide infection was often his chief qualification for office. Unfortunately, this habit has not altogether gone out of fashion, and the fearless health officer who conscientiously reports the occurrence of epidemic disease in his community is bitterly opposed by the commercial interests and the public press. It was not until 1893 that the quarantines of this country were placed on a working basis, and then only after one hundred and ninety-three years of outbreaks or threatened outbreaks of exotic diseases. Repeated epidemics of yellow fever brought forth repeated calls for a national quarantine service, only to be checked by a selfish regard for the vested rights of the state. The terrific outburst of yellow fever which so disastrously afflicted our Southern States in 1878 resulted in the introduction of a bill empowering the general government to assume control of epidemics as an emergency measure only, but failed of passage by the Congress. In fact every attempt that has been made to confer on the Federal Government any power to oversee the health of the nation has fallen before that phrase in the Constitution which delegates to the states all powers not specifically granted to the United States.

It needs no argument to prove that the protection of our coasts from invasion by exotic disease is as much a national duty as their protection against a human foe. The principles which served a loosely connected bundle of colonies do not find their application to a world power, yet, by a strange omission from the Constitution, the health of a state is held paramount to that of the nation of which it is a part. That sacred document does not contain a single phrase from which legal ingenuity can evolve any delegation to the nation of the right to assume any public health power whatsoever.

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The means then of inaugurating this first measure lie either in an amendment to the Constitution or in the ceding of the health powers of the various states to the Federal Government by their respective Legislatures. He would indeed be a bold man who would undertake such a campaign as the latter.

There remains, therefore, but one practical measure, an amendment to the Constitution. Such legislation is not the work of a day. When we consider that about two centuries were consumed in securing a reasonable and necessary national quarantine, we see why so little progress has been made toward the goal of a central health authority. It has never been proposed that the nation should meddle with the internal administration of a state, yet since "the regulation of the national public health was not delegated to Congress, the right to be a national nuisance was reserved to the states." The road to a constitutional amendment will be long and thorny. A nation which expends millions annually to promote great crops and to suppress sheep scab and swine cholera yet appropriates almost nothing to study and to prevent the diseases of man will be slow to see the need of caring for human health. The medical profession and the general public must be educated to the necessity of such an amendment, and while the American Medical Association and the Committee of One Hundred of the American Association for the Advancement of Science have such a movement on foot, it will be years before their labors will bear fruit. When we have aroused an educated public sentiment in health matters we can hope for an amendment to the Constitution. Until then we must work and make the best of what we now have. Public education is a matter of slow growth, but properly conducted will achieve results. The American citizen does his own thinking. He does not take kindly to cheap leaflets and predigested tracts, but if he is shown "why," he can be interested; and, being interested, he will co-operate in any movement for the public good. Time, however, is required before this can be accomplished.

In the interim, if we are to accept Prof. Welch's statement, the annual sacrifice of three quarters of a million of human lives

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must continue. What can be done in the way of an emergency measure to relieve this useless waste of the nation's greatest asset?

At present we have three great bodies in the national line of defense against disease, the Public Health and Marine-Hospital service and the Medical Corps of the Army and of the Navy. The first conducts our quarantines, examines all alien immigrants, and directs all epidemic campaigns. The Army Medical Corps not only cares for the health of its fighting units, but also by its work in our insular possessions and in the Canal Zone does much for the national health, both by precept and practice. Both the army and the navy send back into civil life each year many men who by their training in both personal and military hygiene are able to do much to further the education of the general public in these matters. The sanatoria maintained by the Army, the Navy and the Public Health and Marine-Hospital Service remove from contact with the general public thousands of persons suffering with tuberculosis. Those who are cured return to their homes, there to spread the doctrine of the cure of the disease by proper living and hygienic precautions.

The Army and the Navy, however, find their great relation to the public health in the discoveries which come from the unbiased minds of their medical officers who have unusual advantages for studying diseases and the measures to be adopted for their eradication. Their time is too occupied in caring for the physical condition of the fighting machine to permit their attacking those great problems of sanitation as they affect the civilian population.

The National Guard finds its place of usefulness in the thousands of young men who are annually trained in the basic principles of camp sanitation and personal hygiene. This should be made the subject of a course of lectures to be delivered by their medical officers. It would be perfectly proper and advisable to include in this course a lecture on public health and to point out their duties to the community, not only as members of the National Guard, but also as citizens. Instruction of this character would be especially valuable and would do much to

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improve public health conditions in this country, reaching as it would the younger generations of the better class; but unfortunately it would affect only a small percentage of the population. The National Guard then can no more carry on national public health work than can the Army of which it is the prototype.

The preservation of the public health therefore must be left to the Public Health and Marine-Hospital Service until such time as a constitutional amendment which will establish a great Department of Public Health can be secured.

This is the aim of a widespread and growing movement extending throughout the United States and supported by America's most active workers for public good; the end being to centralize under a Federal head all means of prolonging and saving so far as possible the health and lives of American citizens; to invest in that head facilities for carrying out such work as may be found necessary to preserve what President Roosevelt has termed our "national efficiency." The movement now in progress for the establishment of national control of public health is no new thing. So long ago as 1871 the American Medical Association seriously considered the matter and passed resolutions to the effect that a national health council should be formed. A year later the definite plan to inaugurate a National Department of Health was presented, but met with objection. The following year the matter was again placed before the Association, but the resolution was tabled. From time to time this movement has presented acute exacerbations, but, save for the founding of the short lived National Board of Health in 1878, the end seems no nearer of attainment, and almost every resolution or motion on the subject has met an ignominious end in the pigeon-hole. The present movement, however, may hope for success. The profession and the general public have awakened to a realization of the need and the possibilities of a National Department of Health, and endeavors in this direction will meet with more hearty approval than in 1871. The fruition of these plans will crown the marvelous advance which the science of medicine has made during the last three decades, the advance into the domain

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of preventive medicine. Remedial medicine has occupied the medical stage for centuries; to-day it must give place to prophylaxis. Before this millenium can be reached, however, thousands must perish while we are devising a means for their salvation.

Just exactly what is being done to render disease impossible in the United States to-day?

The first line of defense is the City Health Officer. In the larger cities and towns there are often very talented men as physicians or surgeons. Usually they are the most prominent medical men of the community. Unfortunately they are almost almost "rule of thumb" sanitarians and have no great theoretical or practical training in the duties which they are to perform. It should be said in justice to them, however, that this is not their fault. There is but one medical college in this country offering a course leading to the degree of Doctor of Public Health. Many years ago a course in State Medicine was offered by Rush Medical College, but was abandoned for want of applicants. Few medical colleges teach anything of the duties of public health officers, and for the most part lectures on hygiene are perfunctorily delivered and laxly attended. Too often the City Health Officer has such a large private practice that it is impossible for him to attend to his public duties. He must therefore intrust the discharge of these important functions to underlings whose sole qualification for the positions they occupy is the number of votes they can control, and who have little knowledge or interest in the work they are supposed to perform. Frequently the City Health Officer receives no salary or perhaps only a small annual stipend. None of these things tend to make efficiency.

What has been said of city health officers applies equally to county health officials. In some instances they are not even medical men, a local undertaker or veterinarian discharging those important functions. Usually they are honest, hardworking, underpaid physicians who discharge their duties as well as their defective sanitary education will allow.

The state health work is usually done almost entirely by the Secretary and the President of the State Board of Health, too

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often the other members of which are "swivel chair" sanitarians who attend the meetings of the Board and that is all. The whole system is hampered by lack of educational advantages. If there was any opportunity for study along the lines of their work, many health officers would avail themselves of it. As it is, there is but one such course offered in the United States.

The cure for this evil lies evidently in better education. Education for city, county and state health officers must be provided. It must take the form of a short practical course, and it should be free to any health officer. We cannot expect men to accept positions in which the execution of their duty will make for them life long enemies unless we offer some inducement. Many good men are withheld from public health positions by their own feelings of unfitness for the place; more because of the small salary usually attached to the positions. Local health officers must therefore be better paid. They should also receive training in the duties pertaining to their position. Congress has now under consideration a bill creating such a course in the Hygienic Laboratory in Washington. This bill should be made a law. The section relating to the founding of the school of hygiene reads as follows:

"That to facilitate co-operation between State and Territorial Boards of Health or departments of health including the District of Columbia, and the Public Health and Marine-Hospital Service, there shall be established a school of hygiene for which the facilities of the hygienic laboratory shall be available. Regulations for admission to and for the conduct of said school shall be made by the Surgeon-General with the approval of the Secretary of the Treasury. There shall be received in this school, with such limitations as may be deemed necessary, State, county and municipal health officials, on application by the Board of Health or Health Department of any State, Territory or the District of Columbia; Provided, That satisfactory assurance is given with the application and by the health officer himself that the special instruction desired is to be utilized in the performance of official health duties. Officers of the Public Health and Marine Hospital Service shall be detailed as instructors in said school,

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and officers of said Service may also be detailed to receive instruction. An official, upon satisfactory completion of the course of study in sanitary science as prescribed in the regulations, shall be entitled to a certificate to that effect."

The second part of the cure is covered by the oft repeated phrase "the education of the general public." Local health officers should receive higher renumeration. Some incentive should be offered to induce men of ability to make public health positions a life work and sufficient salary should be paid to make it worth while for a physician to devote his entire time to the discharge of his official duties. An underpaid official is either going to perform his duties in a perfunctory manner or neglect them altogether.

The general public must be taught to hold its public health officer responsible for the occurrence of epidemics of measles, diphtheria and scarlet fever. They must be informed that these are wholly preventable diseases, the occurrence of which is a reflection on the sanitary organization and intelligence of the community. If they have these views on this important subject there will be no objection on the part of the taxpayer to sending the health officer on full salary and expenses to Washington for the purpose of attending the School of Hygiene. Municipal garbage collection and disposal will become the rule instead of the slipshod methods which now too often prevail, and the frightful pollution of the streams of our country with animal excrement will no longer be tolerated.

By whom should this instruction be given? It has already been shown that the American public does its own thinking; that it simply requires of a teacher that he furnish demonstration and proof of the statements which he makes, that it is practical and will make no changes unless the practical side of the question is clearly shown. Who is in a better position to direct this education than the medical profession, but it should not be given by us alone. Happily there is work enough to go round and we will find that the solution of any economic or social question will be greatly facilitated if we invite the assistance of those lay workers who have done so much in carrying forward

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the tuberculosis fight, the movement for park systems and the better housing of the poor. Harrington points out that "it was a lay commission who paved the way to the establishment of the first State board of health in America by pointing out that the average length of human life was too short, that the annual waste of life could be largely reduced, that much unnecessary sickness was preventable and that the thousands of unnecessary deaths, the millions of days of unnecessary sickness and the vast amount of unnecessarily impaired health and physical debility meant an enormous pecuniary and social burden which might be avoided; in short, that preventive medicine is a most comprehensive social and economic problem. It is very largely to philanthropic laymen and to students of economics that the credit for the worldwide movement against tuberculosis belongs. To undervalue the importance of the lay readers and teachers in creating a public sentiment in favor of state medicine, is as short-sighted as to overrate that of a medical man who may have no adequate conception of the real functions of a public health office."

Part of this education must come from the Federal Health Service, but the great bulk of this work must be done by the medical profession as a whole. First we must educate ourselves. Then we can teach others. "The average medical man has no very clear conception of the value of a good system of sanitary bookkeeping or of the methods of applying the knowledge obtained by studying a mass of statistical data, and yet it is upon the registration of vital statistics that we must depend to determine the actual results of public health measures. In order to become an effective part of the educational force, he should acquaint himself with the importance of a great central registration office so as to be able clearly to demonstrate it." How few states have anything like an accurate system of keeping vital statistics and how many of our professional brothers in civilian life pay no attention whatever to the registration of the facts going to make up those statistics. It is offered in extenuation that it takes time and after all is a useless piece of red tape, and in those few states in which no certificates of death, no inter-

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ment permits and no returns of death are required, it is urged that clerks cost money. First then must come the education of the medical profession itself. This is being undertaken by the American Medical Association and is already bearing fruit. The Society for the Study and the Prevention of Tuberculosis, while attacking only a single phase of the problem, is endeavoring to reach the whole public and indirectly is doing much to plant in the lay mind the seeds of sanitary reform.

We must realize that in this campaign of education we have more to fear in our own ranks than from the layman. This does not apply to the medical officers of the Army, Navy, Public Health and Marine-Hospital Service or of the National Guard. These are picked men, trained in sanitation and fully alive to their duties both as officers and citizens. It is the promulgator of half truths and unscientific statements, and the assinine skeptic who decries modern prophylaxis who will do most to hurt the cause. The dogmatically ignorant attracts attention and is followed. The modest and conservative voice of science has no chance with the layman against these blatant utterances.

The education of the public of San Francisco during the recent epidemic of bubonic plague affords an excellent example of what may be done if the problem is approached tactfully. When Passed Assistant Surgeon Rupert Blue took command of the plague suppressive measures in September, 1907, there was a widespread feeling of apathy, in some parts even of open antagonism, in that city. The people and press utterly disregarded the awful situation which faced them. Quietly and with great care lest a too sudden awakening should bring about an exodus, the campaign of education was begun. Reaching its full swing in January, 1908, the Citizens Health Committee was organized, $165,000 was raised, meetings of every tradesunion, labor councils, commercial, social and religious organizations were held, Dr. Blue and his officers going from meeting place to meeting place, teaching the people of the danger that confronted them. Instantly they set to work to assist in the cleaning of the city and the extermination of the rat; homes, stores, markets and vacant

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lots were cleared of rat food, the city was bonded to build new sewers, a new garbage crematory, and the plague was stayed. More than that, the number of deaths from other contagious diseases has been reduced thirty-three and one third per cent and typhoid fever reduced by more than half. The city has not been so clean in years and the lesson of sanitation learned in the harsh school of terror of plague will do much to further the public health movement in other directions on the Pacific Coast. Had the people been approached less tactfully, or by one in whom they had no confidence this could not have been accomplished.

In the same city there are delivered each year in the Cooper Medical College a series of lectures to which the general public is invited. These deal with the great public health problems which are now confronting us. They are well attended and have proven a most gratifying success. They have resulted in a widespread interest in public hygiene and a better mutual understanding between the profession and the general public.

During the New Orleans yellow fever epidemics of 1905, Surgeon J. H. White inaugurated a series of popular lectures on yellow fever. These have been continued by the State Board of Health and there are now few persons in the State of Louisiana who are not familiar with Finlay's hypothesis or Reed's heroic work. This is the right sort of public health work and one of the most important relations of the military and naval forces of the United States to public health. We can do much as educators, for the utterances of a Federal officer carry great weight with the thinking public.

The last link in the chain is the Federal Health Service, the Public Health and Marine-Hospital Service. This is an underofficered and overworked corps covering a large field of responsibilities. Its activities may be divided into two parts, its military and naval duties and its public health functions. In the first category fall the Marine Hospitals, in which sixty thousand sailors are treated annually, its service on board the vessels of the Revenue Cutter service, and its liability to duty with either the Army or the Navy in time of war. In the second group are the Hygienic Laboratory, the Immigration Service, the

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Quarantine Stations and the epidemic suppressive campaigns. It is therefore both a military and naval service of the United States, having a most important relation to the public health. By its quarantines both at home and abroad and the careful medical examination of alien immigrants, this corps reduces to the minimum the entry of epidemic disease into our ports. By its epidemic suppressive work it has been able, when given the opportunity, to eradicate epidemics breaking out within our borders. The first application of the mosquito dogma to a large epidemic of yellow fever in this country was made by this corps and the only campaigns against bubonic plague in America have been conducted under its direction. This Service also collects data concerning the incidence of the various diseases dangerous to the public health in all parts of the world, examines all establishments engaged in the interstate commerce in vaccines, serums and antitoxins, conducts researches in medical zoology, biological chemistry, pharmacology, bacterology and other fields of sanitary science, and engages in other miscellaneous investigations. It conducted the examination of federal employees and the public buildings in which they worked in the District of Columbia to determine the amount of tuberculosis among them and the bearing which the sanitary condition of the workshops might have on the disease. Its report on typhoid fever in the District of Columbia and the bulletin on the Relation of Milk to Public Health form valuable additions to these subjects and are a notable advance toward the national assumption of the typhoid fever and milk problem.

Once each year, and oftener if requested by the health officers of not less than five states, the Surgeon General is required by law to call the Conference of State and Territorial Boards of Health for the consideration of matters pertaining to the public health. The government assumes none of the expenses of these annual conferences either for travel or subsistence. A barrier is thus placed to the frequent consultations which should take place between the head of the Federal Health Service and the State health authorities by reason of the expense which the State or the individual health officer must bear and the fact that the

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call for the meeting must come from the States and not from the Surgeon General. These meetings are of national importance and return good to the nation as a whole. The necessary travelling expenses of the delegates should therefore be borne by the general government and they should in addition receive a compensation for their time including the days of travel to and from Washington. If the states have the right to request a meeting, the same power should be given to the Surgeon General. These meetings occurring oftener than they now do would increase and cement the friendship now existing between the Federal and State Boards of Health and would be of mutual benefit.

A bill was passed by the Senate at the last session of the Congress authorizing such additional conferences. The House of Representatives still has the measure under consideration. That portion of the bill referred to reads as follows:

"Sec. 5. That in addition to the conferences now authorized by law to be held between the Surgeon General of the Public Health and Marine-Hospital Service and the health authorities of the States, Territories and the District of Columbia, when in the opinion of the Surgeon General it is in the interest of the public health to call a special conference to be held in Washington, of said health authorities of not more than five States and one only from each State, the delegates shall receive a compensation of ten dollars a day, including the days of travel to and from Washington and necessary traveling expenses: Provided, That not more than five such conferences shall be held in any one year and the duration of such conference in Washington shall not exceed three days." It is to be hoped that there will be an enactment of this law early in the next session. The Public Health and Marine-Hospital Service is the nearest approach to a Department of Public Health which we have at present. If it is to best discharge its functions it should be enlarged and strengthened in every possible way. This body has proven its ability to undertake large public health measures and has shown that it is prudent to entrust it with the discharge of those even more important public health duties which affect both the mass and the individual.

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The eradication of epidemics has fallen on the Federal Government as an emergency measure, not because the Government could under the Constitution take an active interest in the health of the people, but because epidemics interfere with commerce and must be suppressed because they represent a loss which can be estimated in dollars and cents. This is the same principle which actuates the expenditure of large sums each year in investigating the diseases of swine and cattle and denies the passage of exactly similar legislation calling for an investigation of some of the more common diseases of man. Millions for hogs but not a cent for man! The health of the people at large is held as unimportant as compared with that of wheat, cotton, poultry, swine, cattle and sheep because it cannot be measured by dollars and cents. Human health and human diseases are not considered as an asset or a debit and, therefore phylloxera in grapes and the erysipelas of swine are held to need more attention than typhoid fever and tuberculosis in man. Were it not for the terror which the strangeness of an exotic disease excites, they would soon be treated with the silent contempt accorded those commoner, but in the aggregate, far more fatal illnesses such as tuberculosis, typhoid fever, whooping cough and the whole category of so called unavoidable diseases of childhood. These are the disease foes we have to fear and these are the ones with which the Federal Government must concern itself if the health of the nation is to be maintained. We can by our efficient quarantine service turn from our shores alien diseases but it is the insidious gnawing of the canker worm of "accepted diseases" which strikes at the root of public health. Disease can be and is barred from entry to our ports without unnecessary inconvenience to traffic; the great point is to prevent those diseases which have come to be regarded as inevitable. This is not an emergency duty—it is a permanent duty affecting both the physical and the financial welfare of the entire nation. It is therefore a Federal duty—the duty of the Federal Health Service to undertake the study of these heretofore disregarded foes we have at home. This spells two things, law and money.

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If it is incumbent on this service to undertake the study of these scourges, it is equally its duty to evolve and supply the measures looking to their extermination. In the case of the great epidemics which this corps has fought so well it has been hampered by many things, chief among which are a lack of funds and the absence of a trained and well organized enlisted personnel. A most important and far-reaching precedent has been made by the general government in the case of the San Francisco epidemic of plague. It will be remembered that just a year before that city was stricken by plague it suffered terrific losses from fire and earthquake, and, after going through one of the most trying periods that can be imagined, rose phoenix-like from its ashes. When the visitation by plague came, not only was the sanitary condition of the city, which was only just dragging itself from its ashes, awful, but by reason of a term of graft and misrule the city treasury was depleted, the city's immediately available assets almost run dry. In spite of this lack of funds, San Francisco did her best to stagger under the additional load which the incidence of plague entailed, but seeing that it was impossible to combat the plague with one hand and rebuild herself with the other, she called upon the Federal Government for aid. This was freely, even generously afforded, the government first bearing the expense of officers only, next paying the salaries of the men, an item of about one thousand dollars per diem, and finally taking over practically the entire expense of the campaign, officers, men, transportation and supplies. Thus an important precedent has been created which cannot help but have its bearing on future epidemics. And this is as it should be. An epidemic of any disease which will cause death or suffering or reduce the wage earning capacity of a certain percentage of our population is not a local affair, but a matter of grave national import. The Pacific States should not be obliged to bear the expense of preventing the passage of a local disease into other states simply because of the geographical situation. If this be true of plague in California, it is equally true of small-pox in Maine, yellow fever in Louisiana, or dengue in Texas. And if these states are to be relieved of the expense of protecting their

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neighbors and the country at large, should not the cost of the combat with typhoid fever in Pennsylvania or uncinariasis in our Southern States be borne by the central government? It may be safely assumed that hereafter there will be little difficulty in securing federal money with which to fight epidemics of high mortality. It is also to be hoped that this precedent may be extended so as to include the funds which should be available for combating tuberculosis, and those commoner diseases which are, in their final analysis, far more dangerous. We may then consider the question of money as practically assured.

What shall we say, however, regarding a trained and well organized enlisted personnel with which to do the heavy work required in epidemic campaigns? At present the Public Health and Marine-Hospital Service has no enlisted personnel. It has, however, civil service employees, in the persons of its pharmacists, clerks, nurses, hospital and quarantine attendants. With the exception of the pharmacists, these are not available for epidemic suppressive work. The first thing this corps has to do on taking the field is to employ and train a large number of men. These have to be gathered from every available source, and many of the men who present themselves for employment are the nondescript debris of the epidemic or the dregs of the community. Men who are to be employed in sanitary work must be honest. That is the first qualification, for a single case of theft by a member of the sanitary force would ruin utterly all the good impression which may have been made before, because the householders would be afraid to admit the members of the sanitary force to the premises. These men have to be picked over carefully and much valuable time has to be wasted in sorting the wheat from the chaff. At best this is largely guess work, and it is wonderful that in both the New Orleans and the San Francisco campaigns not one case of theft occurred. Granted that the employee is honest, he is of no value in the sanitary campaign until he has been trained. This requires time during which the scourge must be stayed in its march. This means that men of imperfect training must be put on important work and while the medical officers concerned with the different parts

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of the problem may endeavor to oversee the work, it is impossible for them to check and correct the many mistakes which are sure to be made by men who have zeal without training. During the San Francisco campaign, schools of instruction for all classes were organized and the District Commanders already worn out by the work of the day, were obliged to use the time which should have been spent in rest, in teaching their men the principles on which the fight was based. This yielded good results, but it took at least sixty days before really good, effective team work was secured. This time was lost when the pestilence was at its height, time which might have translated itself into great loss of human life and commercial prosperity. It was found that at least two months were required to produce a good rat catcher, that an inspector did not really reach his maximum of usefulness in that time and that considerable time was required for the rat-skinners and other laboratory employees to become expert or even proficient. There is at present in San Francisco as good a sanitary Corps as the world has ever seen, men who for one year have fought unceasingly to stay a plague and cleanse a city. When the campaign is ended these men will go back to their ordinary vocations and save for the small interest in hygiene which they may be able to impart to their neighbors, this valuable training which has been produced at the cost of so much time and painstaking labor, will be absolutely lost. Men who have become expert in the practical application of the fundamental principles of sanitation will go back to their lives as artists and artisans and their intricate knowledge which might be employed in a field of more benefit to mankind will have been thrown away, so far as the future is concerned. There should be some way in which to retain a part of these men in the service of the United States. There would always be work enough for them to do, for we have never had a time of sanitary peace since the first settlement in America. This would form the basis of a standing sanitary army, a mobile organization which would never be idle and would pay for its cost of maintenance many times over in human lives and the prevention of commercially disastrous quarantines.

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Think what such an organization could accomplish in a campaign against typhoid fever or uncinariasis, and the time which could be saved in controlling those more fulminant epidemic maladies which run their rapid, devastating course through a season's frightful mortality.

The sanitary force in San Francisco has been organized on military lines and discipline and esprit de corps of a high order maintained. Should the future ever see the founding of a permanent corps of this character it is suggested that such an organization should be formed along similar lines. The corps might be at first a skeleton formation from which nucleus might be built a larger body by the addition of recruits in time of national sanitary danger. The permanent force would be the leaven for the whole loaf, and could furnish the non-commissioned officers, i. e. inspectors, assistant inspectors and foremen, while the laboring positions could be filled by recruits. Such a corps should be made a part of the Public Health and Marine Hospital Service by whom this little sanitary army should be officered. Train and uniform such a body of men, let their pay be commensurate with the highly important and dangerous duties they will have to perform and the results will more than justify the expenses entailed.

At present such an organization could not work in any State unless requested by the Government of that State, unless an epidemic disease threatening interstate commerce existed therein. National legislation is therefore necessary to permit a certain freedom of action on the part of this much needed flying sanitary squadron. Before attempting to secure this it is necessary to examine the sanitary code to determine what laws are not effective and upon what principles they are based.

What is the condition of the statutes regarding the law as it affects sanitation? The fact that we are a commercial nation is in no way better exemplified than by the laws under which the public health work of this country is now carried on. All of these laws are at the bottom, regulations of interstate commerce. The act of August 30, 1890 prohibiting the importation of adulterated foods and beverages, was a law for the protection of

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American manufacturers, as was also the act of March 2, 1897, which authorized the Customs Service to deliver to the Department of Agriculture samples of consignments of tea for the purpose of analysis and the law of March 3, 1903 subjecting imported foods to a similar test. Even the so called national pure food law, the Food and Drugs Act of June 30, 1906 and the Act to regulate the manufacture and sale of antitoxin and virus are only indirectly health measures, being in reality simply regulations of interstate commerce.

We have then national laws under which the public health may be safeguarded which are not health laws at all and while we can under the guise of seeking to protect and foster commerce, prevent the introduction of noxious or adulterated foodstuffs from without, or the shipment of sophisticated foods from one State into another state, we have no national law which prohibits the manufacture and sale of impure or contaminated foods within the borders of a state. We have a law requiring that meats which are to be shipped beyond the borders of a state must conform to a certain standard of excellence, but the national government cannot prevent the sale of cattle or meats which have been refused by the government inspector within the boundaries of that state. There is no national law at all governing the interstate traffic in that most important article of diet, milk, and while there is a heavy penalty for mislabeling oleomargarine and cheese, there is no Federal regulation prohibiting the sale of the dairy products of diseased cattle.

There is another article of daily consumption of which the Federal law takes no cognizance. Any state can interfere with and prohibit the pollution of the water supplies in its domain, but neither one state or the entire collection of States can prevent any single state from pouring its sewage into interstate waters, even though the stream may have its origin in one state and be the water supply of another. It would therefore seem just that the prevention of the pollution of streams should be placed under the jurisdiction of a central health authority. The widespread disregard of our people for the most rudimentary conceptions of sanitation finds no better example than in the way the

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beautiful streams of our country have been turned into cloacae by the emptying of sewage into them. Injurious alike to the health and commerce of the community, this frightful pollution of the rivers with excrement and offal has received the sanction of the people and their lawmakers until it has become an evil of national urgency, requiring the earliest and most serious attention. While the national Government has no sanitary supervision whatever over inland waters, it controls absolutely the navigation of these streams. Each year millions are spent in dredging harbors and deepening channels but no measures are taken to prevent these harbors from becoming cesspools or the channels from becoming sewers. After the primary deepening much money must be spent annually to remove the solid sewage which the municipalities of the state are allowed to empty into the stream or haven. We are thus spending millions uselessly each year in removing accumulations which might be prevented were proper attention paid to sewage disposal. It is a serious offence for anyone to interfere in any way with the navigation of a stream, and since the pollution of interstate waters cannot be prevented by a health measure, it would seem logical to secure a national law prohibiting the emptying of sewage into interstate streams as a measure affecting commerce. Purity of interstate waters can be conserved only by such a law or by the co-operation of the states concerned, and Federal control as a health measure can be granted only by a constitutional amendment requiring years of concerted endeavor on the part of the people. The great etiological relationship which polluted water bears to enteric fever and possibly to many of our other common diseases raises the hope that some day we may see the protection of our water supplies under the control of the central Government.

When we examine the laws of the states whose health powers must be so sacredly guarded, we find a woeful lack of uniformity. Some, the minority, have a sensible sanitary code dealing specifically with the matters to be governed. Others have a sweeping set of sanitary laws as full of flaws as a sieve is full holes, the easy prey of the acute legal mind and so full of glittering generalities that a case cannot be taken into court on them

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for fear that their constitutionality will be questioned and the law found useless. In a few states there is also no sanitary code whatever.

In the cities and towns conditions are even worse. The sanitary law is a part of the police code and the enforcement thereof a duty of the Chief of Police. Sometimes a zealous health officer insists on the application of these ordinances and on one occasion at least, such an one has been told by the very Board of Aldermen who passed the law that it was intended as a "warning" ordinance only and was not meant to be enforced. It has been the experience of those Federal Health officers who have been engaged in the suppression of epidemics that one of their first duties was to secure the passage of suitable ordinances under which to carry out their work and even then nine tenths of the results attained are achieved by a judicious use of bluff and cajolery.

The sanitary laws of this country then, should be revised and placed on the solid basis of modern science. We have seen that little can be done in the way of national legislation save to impose additional duties on an already overworked and underofficered corps until such time as an amendment to the Constitution can be secured. The revision then must begin in the towns and cities and from them spread to the state. It is here that the National Guard can perform a most important service. The citizen soldiery represents votes and a willing voter attracteth the hungry politician. If in the course of lectures mentioned above it is pointed out that a careful revision of the sanitary code is a consummation devoutly to be desired, a company of guardsmen can secure such revision not only in their home town, but also throughout the state.

If the American Public Health Association were to appoint a committee to draw up a sample sanitary code for towns and cities, and a copy be placed in the hands of every medical officer, physician and national guardsmen in the United States, unified action could be secured and the sanitary laws of this country put on a uniform basis so that adulterated milk which could not be sold in Massachusetts could not be disposed of in Rhode Island or Connecticut. Public health officials of the Federal Govern-

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ment would not then have to make a new set of laws in order to secure the best results in combatting an epidemic disease within the borders of a state.

The general government recognizes the importance of its public school by creating a National Bureau of Education, but the commissioner at the head of it has no power to introduce into the public schools courses of instruction in the elements of personal and public hygiene, to cause the physical examination of school children or to inaugurate means of preventing the spread of contagious diseases among them. If we are to educate the general public to the end that we may secure their co-operation in public health work we must commence with the rising generation. Beginning with the child upon whose plastic mind is ineffaceably impressed the lesson that a proper regard for the public health is the highest order of citizenship, we may carry the work by gradations to the adult whose mature mind may more fully grasp the underlying principles of hygiene. There is the greatest need for instruction of this kind in the United States. If the interest in hygiene were more widespread we would not have the spectacle of newly raised regiment of volunteers in time of war, most of whom consider an order relative to the places of urination and defecation as an infringement on their free born rights. A campaign for the education of our future volunteers would be most profitable, not only because a body of men trained from childhood in the principles of sanitation would be able to take better care of themselves on the field than those not so trained, but they would also be a tremendous asset to the public health of the community. The public school is the place in which to give instruction of this sort, and it is the duty of those who are working to establish and maintain a better public health to urge upon their Commissioners of Education the initiation of such a course into all institutions of learning from the grammar school to the college.

There is another educational matter of which the general government takes no official account, that is the education and the subsequent licensing of physicians, masters, mates and pilots on vessels plying in United States waters or upon vessels flying

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the flag, who are obliged to satisfy the appointed representatives of the central government as to their fitness for their vocations and once having passed such an examination, no further such tests are required no matter in what state they pursue their occupation. The physician who is responsible for the safe pilotage of the frail craft of human life through the troubled waters of disease is not allowed the privilege of a national license but is obliged to submit to vexatious penalties of pocket and of mind at the hands of each of the various states and territories. Further, a registered practitioner of one state cannot go to another state and take up his life work without additional payments and penalties. The American Medical Association and the Association of American Medical Colleges have done much to raise the standard of and to secure uniformity in medical education, and some states have arranged partial terms of reciprocity of license, but in the great majority this manifest injustice imposed on the medical profession by itself still continues. Even the medical officers of the Federal Government are exempt from examination only so long as they are engaged in their official duties and are legally obliged to undergo an examination at the hands of the State Board of Medical Examiners in order to do private practice. From what has been said regarding the Constitutional public health hiatus it is evident that no legal steps can be taken by the general government to force uniformity of examination or reciprocity of licenses. It is evident then that for the present our hope in this direction must lie in reciprocity of medical license by the states. This movement has not brought forth the uniformity for which its originators hoped because of the intricate complications which arise in the execution of the plan. Illinois may reciprocate with North Dakota but not with Georgia though the latter may have established reciprocity with North Dakota. Hence the whole is hopelessly muddled because there is no one person to set the standard by which the right to reciprocate must stand or fall. Who could better discharge this function than the head of the national health service? There seems also to be a very simple plan by which the constitutional objections could be circumvented.

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A law could be passed directing the Surgeon General of the Public Health and Marine Hospital Service to investigate the various medical colleges of the United States to determine if their graduates receive training of a standard and uniform character. Upon this information he could admit to examination graduates of medical colleges whose course of instruction reaches the standard which he shall set. Those passing this examination are given a license authorizing the holder thereof to practice medicine in the District of Columbia and those states whose Boards of Medical Examiners will accept the license. Here then we have a standard of reciprocity interfering in no way with the prerogatives of any state. The State Boards of Medical Examiners may accept or refuse the license as they see fit, but it is safe to assume that most of them would grant a ready acceptance on account of the high standard such a license would represent. It would be fair to the state, just to the medical profession as a whole, would save the physician so registered endless bother and worry and would react to the lasting benefit of the public health.

Throughout this essay the endeavor has been to show the importance of the relationship existing between public health and the military and naval forces of the United States; the ways in which this relationship may be turned to better account and the obstacles in the way of the execution of these plans. The redemption of the Panama Canal Zone from preventable diseases, the sanitary record of the Japanese in their war with Russia, the brilliant victory of White over yellow fever in New Orleans, and Blue's accurate application of the basics of preventive medicine to the eradication of plague in San Francisco demonstrate the weapons which modern civilization posesses against pestilence and disease. They all show that the warfare against disease, like the warfare against a human foe, can best be conducted by the general government. Let us hope that the future holds in store the time when such campaigns may be waged whenever necessary by the government which is "by the people, of the people, and for the people," to the end that human suffering may be prevented and life prolonged.

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Original Memoirs.

THE WORK OF THE BOARD FOR THE STUDY OF TROPICAL DISEASES IN THE PHILIPPINES.

By CAPTAIN HENRY J. NICHOLS,
MEDICAL CORPS UNITED STATES ARMY,
AND
CAPTAIN J. M. PHALEN,
MEDICAL CORPS UNITED STATES ARMY.

THE Board for the Study of Tropical Diseases as They Exist in the Philippine Islands, submits the following report of its work during the quarter ending March 31, 1908:

PARAGONOMIASIS.

No new cases have been found since those noted in the last report. Inquiries concerning this disease were sent out to thirty-two Scout Stations, but only four replies were received, and these were negative. All of the cases mentioned in the last report are now out of the service, five by expiration of term of service and one on certificate of disability. The disposition of these cases raises a question, but in view of our ignorance concerning the life cycle of the parasite, and the mode of infection, it appears inadvisable to retain them in the military service. In this connection we have learned from Dr. Ryley, R.A.M.C., a delegate to the recent meeting of the Philippine Islands Medical Association, that in the English Army it was formerly the custom to discharge all cases of Bilharziosis as soon as discovered, but that this has been discontinued, and now no attention is paid to the disease from the point of view of prophylaxis.

After several failures to hatch the eggs, using sea water, tap-water and distilled water at room and body temperatures, we have succeeded in hatching a considerable number in tap-water

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at ordinary temperature. The eggs came from the sputum of the first case found. It was collected in a large jar for two weeks, then highly diluted with tap-water, the eggs allowed to settle, and the fluid poured off. This was repeated until the fluid was perfectly clear. In about six weeks active ciliated embryos were seen, at first within the eggs, later after having escaped, and many empty eggs were also observed. Excellent photomicrographs have been obtained of the embryos within the egg and just after having escaped therefrom.

We have exposed monkeys to infection with the parasite at this stage, by way of the skin, by the mouth, and by intraperitoneal injection. At this time it is too early to determine whether infection has taken place. In regard to the snail as an intermediate host it is evident that if such is the case, the embryo must leave its host later. Snails are cooked until the muscle is loosened and they are sucked out of the shell. This requires boiling for two or three minutes, and infection by any contained parasite would be impossible after such treatment.

SCHISTOSOMIASIS.

A case of infection by the schistosomum japonicum was observed at the Division Hospital recently. The patient, a member of a Visayan Scout company, came to the hospital on January 16, 1908, and was assigned to the service of Captain E. L. Ruffner, and died the following morning. When he came to the hospital he was suffering from diarrhea and abdominal cramps, and had a weak, irregular heart-action. The autopsy was performed by Captain E. R. Whitmore, a few hours after the death of the patient. The most pronounced gross abnormality to be observed was a moderate enlargement of the liver and spleen with a number of adhesions binding down the latter organ. The liver was not cirrhotic in appearance, but presented a number of yellowish patches over its surface, and in addition the whole surface was studded with small white spots up to the size of a pin head. On section, small nodules corresponding to the spots on the surface were found scattered uniformly throughout the organ. One of these nodules was excised and crushed on a

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cover-glass and was found to contain eggs of approximately sixty by forty microns. Recognizing it as a probable case of schistosomum infection, a search was instituted for the adult parasite in the blood vessels of the mesocolon, but without success. Tissues were taken from the liver, lung, kidney, small and large intestines which were sectioned and stained for study. The nodules in the liver were found to occupy a lobule or two lobules fused together, the normal tissue replaced by a necrotic mass which was being replaced by connective tissue. Eggs in varying numbers were found in these nodules. It was evident that a cirrhotic condition was being produced in the liver; due either to the mechanical action of the ova, or, as has been suggested, to a toxin produced by the adult parasite. The large intestine showed miscfoscopically one area low down in the bowel that was swollen and congested, and microscopically eggs were found scattered through the mucosa and submucosa, though in rather small numbers. No eggs were found in the other organs.

It is unfortunate that we were unable to observe the clinical course of this case, and no history of the man's previous illness was obtainable. In Japan, where infections with the schistosomum japonicum are seen quite frequently, the patients are said to suffer from a chronic diarrhea, resembling dysentery in that the stool contains mucus and small amounts of blood, enlargement of the liver and spleen, ascites and anemia. From the pathological findings it will be reasonable to expect a similar line of symptoms in this case.

The personal history of this patient is of importance, as it shows an almost continuous residence in the Visayas since birth, the first twenty-four years of his life being spent in Samar, and the last six years, while in the military service, on the Islands of Panay, Cebu, Leyte and Samar. It is evident then that the infection was incurred somewhere in the Visayas. In the only previously reported case from the Philippines, that of Dr. Wooley, of the Bureau of Science, Manila, the patient had never been out of the Philippine Islands. In this case the large intestine was greatly affected, though as the patient was suffering

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from a coincident amebic dysentery, it is hard to say which element had most to do with the condition.

It is evident then, that in the diagnosis of chronic bowel troubles, in these islands, the possibility of infection with the schistosomum japonicum must not be overlooked. Diagnosis will rest upon finding the characteristic egg in the stools. The eggs are oval, variable in size, averaging about fifty by seventy-five microns, smooth in outline, and when passed in the stools frequently containing a ciliated embryo, though the ones observed by us, being taken from the bowel contents at autopsy, did not show them. Photomicrographs were obtained showing the ova in the liver and the microscopic appearance of a section of nodule.

In regard to trematode infection in general, statistics recently reported covering examinations of over 4,000 Bilibid prisoners shows a great preponderance of these infections from the islands of Samar and Leyte, and this result is in harmony with our observations.

FILARIASIS.

Through the courtesy of Dr. Shattuck, of Bilibid prison, we had the opportunity of studying a case of this disease which is of unusual interest. The patient is a male Filipino, thirty-five years of age, a native of the province of Union, but has been in Manila about ten years, being employed as a laborer. He was sentenced to Bilibid in January of this year and immediately came under Dr. Shattuck's care on account of hydrocele. This was operated upon January 29th, and about 250 c. c. of a milky fluid was obtained. This fluid was sent to us, and upon examination was found to contain microfilaria in large numbers, which morphologically answered to the description of the Filaria philippinensis as described by Drs. Ashburn and Craig. This man's blood was then examined systematically and microfilaria were found, always very infrequent, but apparently as numerous by day as by night. So infrequent were the parasites that as many as ten to fifteen slides had to be examined before a single one was found, and frequently none were found even in such a number of slides. The man gave a history of a gradual swelling of the right side

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of the scrotum for about one year, but experienced no other symptoms. Upon examination the right calf and the right inguinal glands were found to be enlarged, the former but slightly. Dr. Shattuck has shown us another patient upon whom he had operated for simple hydrocele, and in whose blood a microfilaria was found. This patient was a native of the province of Albay, male, single, thirty-five years of age. He had lived in Albay all his life until committed to Bilibid prison. He gave a history of having what he describes as a swelling of the left leg and abdomen ten years ago. This lasted five months and then broke in the groin and over the saphenous opening and about a pint of white fluid was discharged. From the man's description we conclude that this was probably chylous fluid and not pus.

Filaria have several times been found in the man's blood during the day by Dr. Shattuck, but were not especially studied to determine the species.

The peculiar interest in these cases is that the microfilaria nocturna has always been regarded as the only one that produced pathological lesions. In the first case here recorded we have an undoubted chylocele produced by the microfilaria philippinensis with probably a beginning varicose groin glands and elephantiasis of the right leg. During a trip to the province of Sorsogon, which a member of the board made with the Director of Health, for the purpose of collecting lepers, eleven cases of elephantiasis were observed among those brought in as suspects. These cases showed a variety of lesions, one or both legs being affected in ten cases, lymph scrotum was present in three cases, varicose groin glands in one case and in one the left arm alone was involved. The short time spent at each town and the fact that it rained almost continuously during the trip rendered it difficult to study these cases to much advantage, but nevertheless photographs were taken of a number of them, some of which turned out very well. Blood smears were taken from all of the cases, but no parasites were found. We hope to be able to make another and longer trip to this section of the islands and study these cases more in detail and establish the identity of the filaria causing the elephantiasis.

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Another case observed at the Division Hospital is of interest as a probable infection with the microfilaria philippinensis showing nocturnal periodicity with a question as to the locality where the infection was obtained. The patient, a colored soldier of the 25th Infantry, was transferred from Parang, Mindanao, to the Division Hospital by Captain I. W. Rand. He is twenty-two years of age, a native of Charleston, S. C., where he lived until he entered the military service early in 1907. After seven months service in the United States at Columbus Barracks, Ohio, and at Fort Reno, Okla., he came to the Philippines in September, 1907, and went to Parang. On February 12th, 1908, he went to the hospital suffering from headache and fever, his blood was examined and a microfilaria was found. At the hospital here we have had the opportunity of examining the patient's blood at all times during the day and night, and of studying the parasite under the most favorable circumstances. As to the periodicity the following table shows the number of parasites found in two slides at each hour of the day and indicates decided nocturnal periodicity for the parasite:

Hour.	Number found	Hour.	Number found	Hour.	Number found
12.00 m.	0	8.00 p.m.	82*	4.00 a.m.	33
1.00 p.m.	0	9.00 p.m.	141*	5.00 a.m.	16
2.00 p.m.	0	10.00 p.m.	33	6.00 a.m.	7
3.00 p.m.	0	11.00 p.m.	68	7.00 a.m.	1
4.00 p.m.	1	12.00 p.m.	72	8.00 a.m.	0
5.00 p.m.	0	1.00 a.m.	48	9.00 a.m.	0
6.00 p.m.	6	2.00 a.m.	76	10.00 a.m.	0
7.00 p.m.	15	3.00 a.m.	47	11.00 a.m.	1

* Larger drops.

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The microfilaria measures about .280–.300 mm. in length and .0075 mm. in diameter, is enclosed in a sheath which while apparently tightly approximating the body laterally extends well beyond the head and tail, the latter especially, this excess of sheath being fully one-third the length of the parasite. No movement of the worm within the sheath was observed. The head is rounded, showing a spot which has been described as like an eosinophilic granule at the anterior extremity, and from this spot a delicate spicule was observed to be protruded. No lips could be observed. The tail tapered to a fine point.

Anterior and posterior "V" spots were present, the former about eighty-five to ninety microns from the anterior extremity. The central viscus shows a spiral appearance. Movement of the parasite was both lashing and progressive. Dispite some minor discrepancies this parasite is seen to answer quite well the description of the microfilaria philippinensis, though the periodicity is against that view. The question whether this infection was obtained here or in the United States must remain in abeyance until more is known of the variety and distribution of filaria in both countries, and then the answer may only be by inference. Captain E. R. Whitmore has been doing some work with this case to trace the development of the microfilaria in the mosquito. Taking the Culex fatigans for the purpose, he induced them to bite the patient at times when the parasites were numerous in the blood. Since then mosquitoes have been dissected at frequent intervals and the course of development in the mosquito followed out as far as it goes. After about two weeks an attempt was made to infect monkeys with the parasite by inducing mosquitoes to bite them, but for some reason the mosquitoes refused to bite. An incision was then made in the back of the neck of a monkey and an infected mosquito, recently killed was broken up and imbedded in the tissues by sewing up the wound over it. Any developments from these experiments will be reported later.

AMEBAS.

Considerable attention has been devoted during the quarter to the observation of amebas and to their cultivation. Using

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the amoeba media recommended by Dr. Musgrave of the Bureau of Science, we have been able to grow amebas from a variety of sources such as surface waters, washing of vegetables, and dysenteric and apparently healthy stools, and three times we have succeeded in growing them from liver abscess pus obtained at operation. These cultures have been studied with great care in connection with amebas found in stools, with the result that we were unable in either case to find constant characteristics to at all warrant a differentiation into species. Still less do we feel that the appearance of an ameba can be relied upon to determine its pathogenicity. We do not doubt the probability of a multiplicity of species, but their differentiation is work for the the expert zoologist, and until such work has been done and the contrary established, it is our opinion that all amebas should be regarded as potentially pathogenic.

We have made a number of experiments with a view to infecting monkeys with amebas but with little success. These animals have been fed upon cultures from liver pus, from dysenteric stool and from tap-water, and encysted forms recovered in the stools, but without producing any appreciable effect. Salt solution containing a culture from liver pus, and salt solution with a tap-water culture were injected into the livers of monkeys but without producing lesion. Rectal injections of amebas from the same sources were also unproductive of results. It is interesting to note however that a monkey that was associated with those upon whom these experiments were tried, spontaneously developed dysentery with amebas in the stools.

OIDIOMYCOSIS.

This title is a term suggested by Ricketts to embrace a variety of pathological conditions due to infection by blostomyces and allied organisms. Infections of this class appear to be quite frequent in the Philippines, in both man and domestic animals, producing lesions of the skin, glandular tissue and the lungs. As it is our hope to be able soon to bring out a special report upon this subject, we will only refer in this report to two cases of skin infections that have recently come under our observation.

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Case I. The patient, a sergeant in the Twenty-sixth Infantry, came to the Philippine Islands first in 1904, and took station at Camp Jossman, island of Guimaras. In the spring of 1905, while cutting a clump of bamboo at that post, he cut his right wrist on a thorn. The cut bled a little and he sucked it. A little later the spot became reddened and itched greatly, gradually spreading around the wrist. A similar spot appeared upon the palm of the right hand. These spots were treated with ointments of different kinds for nearly two years, until while at Mt. Gretna, Pa., in 1906, they were healed by applications of bichloride of mercury and alcohol. Shortly after small spots of a similar character appeared upon the left wrist and left leg, which have continued to spread ever since, more rapidly since coming again to the Philippines. The lesions now present are situated on the outer side of the left leg near the knee, and on the back of the left wrist. These spots are each several inches in diameter, slightly raised, have a well defined edge and are covered with dry scales, which when removed, leave a pink glistening surface. The lesions feel rough and indurated. The scales, when removed, treated with potassium hydrate solution and examined under a high power lens show the presence of large numbers of round bodies, three to five microns in diameter, with a double contour and showing many budding forms. We will leave to a future report a more detailed account of this organism, together with the experiments we have undertaken with it.

Case II. This patient is an officer in a scout organization and gives the following history. In 1904, while stationed at Camp Connell, Samar, he noticed a small papule near the middle of his left cheek. He does not remember much about it except that it itched, and that from it the present eruption extended, at first downward, then backward and upward parallel to the lower jaw. He does not recollect any injury or abrasion of the face previously. At first the lesion was quite superficial, and the earlier places were healed by the application of nitrate of silver.

There is now present on the left cheek a large crescentic patch extending parallel to lower jaw, presenting an indurated ridge along the convexity of the patch, and induration of a less

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degree inside. The whole is red and shining, except where covered by dry scales. Along the ridge, a number of more indurated spots exist, lighter in color, which upon opening exude a drop of white pus. There are some few scabs covering small white cavities also containing pus. Examination of the scales in this case shows the same round, double contoured, budding organisms as in the previous case.

These cases coincide both in appearance and in microscopic findings with the case of Blastomycotic dermatitis reported by the former Board in 1906.

YAWS.

One case of yaws in a Scout has been under our observation at the Division Hospital and several cases were seen by one of us on a recent trip to Sorsogon and Culion. The Scout was a member of the Twenty-ninth Company stationed at Imus, Cavite, twenty-six years old, with six years in the service. About a year ago a yaw developed on the neck following a cut by a razor and about a month later a general eruption occurred affecting the forehead, neck, back and legs. He was treated with mercury and iodides at the Hospital at Camp Ward Cheney by Contract Surgeon Farrow, and in about two months was sent to duty apparently cured. Four months later he had another milder outbreak of yaws and was again treated for two weeks in Hospital. We saw the patient at the end of this attack and at this time he had only one active yaw on the elbow. Treponema pertenuis was easily demonstrated with Giemsa's stain. The yaw was excised and sent in formalin to the Curator of the Army Medical Museum to be stained by Levaditi's method and we have since received from the Curator a number of fine sections. For some reason it is difficult to stain by the Levaditi method here, no satisfactory stains have been made either at the Bureau of Science or the Naval Station. We have had partial success in one instance. We secured some Atoxyl with the intention of trying it on the patient but he showed no more yaws.

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The Seventeenth Annual Meeting

Atlanta, Georgia, October 13-16, 1908.

MINUTES OF THE MEETING.

Dr. George Tully Vaughan, P.H.&M.H.S., President.

THE city of Atlanta, Ga., was the scene of the Seventeenth Annual Meeting of the Association of Military Surgeons of the United States, which convened at the Piedmont Hotel, Tuesday morning, October 13, 1908, and continued in scientific session during the ensuing two days, with one day additional devoted to the cultivation of mutual acquaintance, the following officers, members and delegates being present.

OFFICERS.

*Assistant Surgeon General GEORGE TULLY VAUGHAN, Public Health and Marine Hospital Service, *President.*

Rear Admiral PRESLEY M. RIXEY, Surgeon General U.S. Navy, *First Vice President.*

Colonel JOSEPH K. WEAVER, National Guard of Pennsylvania, *Second Vice President.*

*Major JAMES EVELYN PILCHER, United States Volunteers, *Secretary and Editor.*

Major HERBERT A. ARNOLD, National Guard of Pennsylvania, *Treasurer.*

Captain J. CARLISLE DEVRIES, N.G. New York, *Assistant Secretary.*

*Not now in active service as such.

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MEMBERS.

Captain M. Burnwell Abernethy, North Carolina N.G.
Major Henry Allers, N.G. New Jersey.
*Captain Gustavus M. Blech, Illinois Res. Troops.
*Major Bial F. Bradbury, U.S. Volunteers.
Captain J. Fulmer Bright, Virginia Volunteers.
*Colonel George Brown, N.G. Georgia.
*Acting Assistant Surgeon O. H. Buford, U.S. Army.
Colonel M. A. Burgess, Wyoming N.G.
Major Daniel S. Burr, N.G. New York.
Captain P. F. Butler, Massachusetts V. M.
Surgeon Paul M. Carrington, P.H.&M.H.S.
Lieutenant Charles D. Center, Illinois N.G.
Major George S. Crampton, N.G. Pennsylvania.
*Captain F. Elbert Davis, N.G. New York.
Major Howard S. Dearing, Massachusetts V.M.
Lieutenant Thomas F. Duhigg, U.S. Army.
Captain J. W. Duncan, N.G. Georgia.
Colonel John F. Edwards, Wisconsin N.G.
Major Theodore W. Evans, Wisconsin N.G.
Major Charles B. Ewing, U.S. Army.
Major D. S. Fairchild, Jr., Iowa N.G.
Brigadier General Charles C. Foster, Massachusetts V.M.
Captain John Vernon Frasier, Michigan N.G.
Major Edwin M. Fuller, Maine V.M.
Captain G. H. Green, N.G. Georgia.
Major Thomas E. Halbert, Tennessee N.G.
Major G. H. Halberstadt, N.G. Pennsylvania.
Colonel Valery Havard, U.S. Army.
Lieutenant Harry A. Haze, Michigan N.G.
Captain George N. Hidershide, Wisconsin N.G.
Acting Assistant Surgeon Montafix W. Houghton, P.H.&M.H.S.
Major Arthur R. Jarrett, N.G. New York.
Major William Jepson, Iowa N.G.
Major Henry Aaron Jones, Rhode Island M.
Major Jefferson R. Kean, U.S. Army.
Lieutenant A. H. Lindorme, N.G. Georgia.
Major W. C. Lyle, N.G. Georgia.
Lieutenant William D. Lyman, Michigan N.G.
Major Charles Lynch, U.S. Army.
Major Junius F. Lynch, Virginia Volunteers.
Lieutenant Colonel George Paull Marquis, Illinois N.G.

* Not now in active service as such.

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Acting Assistant Surgeon William Henry Marsh, P.H.&M.H.S.
Major E. A. Martindale, Iowa N.G.
Major James C. Minor, Ark. N.G.
Captain George Morgan Muren, N.G. New York.
Captain James R. Nankivell, Tennessee N.G.
Colonel F. S. Nicholson, Nebraska N.G.
Colonel John B. O'Neill, Maine V.M.
Colonel Matt R. Root, N.G. Colorado.
Lieutenant William G. Schauffler, N.G. New Jersey.
Medical Director Manly H. Simons, U.S. Navy.
Lieutenant Colonel Andrew S. Stayer, N.G.Pa.
Brigadier General Alexander J. Stone, Minn. N. G.
Major Thomas J. Sullivan, Illinois N.G.
Colonel Blair D. Taylor, U.S. Army.
*Acting Assistant Surgeon W. T. Thackeray, U.S.Army.
Major H. H. Tuttle, Illinois N. G.
Captain C. Bruce Walls, Illinois N. G.
Surgeon C. P. Wertenbaker, P.H.&M.H.S.
Passed Assistant Surgeon Mark J. White, P.H.&M.H.S.
Captain B. J. Witherspoon, North Carolina N.G.
Medical Director John C. Wise, U. S. Navy.

REPRESENTATIVE OF FOREIGN NATIONS.

Lieutenant Colonel W. H. W. Elliot, Indian Medical Service.
Lieutenant Colonel José Barbosa Leão, Portuguese Army.
Major Ernest A. LeBel, Canadian A. M. C.
Lieutenant Colonel Alejandro Ross, Mexican Army.
Lieutenant Colonel M. W. H. Russell, British R.A.M.C.

In addition to the foreign delegates mentioned above, many of the members present were officially delegated by their states and services, all of the three national services being represented by three delegates each, while many of the states sent more and some less in number.

The meetings of the Association were attended not only by the foregoing members and delegates but also by a considerable number of physicians of Atlanta and vicinity and a number of subscribers to THE MILITARY SURGEON, who, though not eligible for membership in the Association, are greatly interested in military medical matters.

* Not now in active service as such.

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FIRST SESSION, TUESDAY MORNING, OCTOBER 13, 1908.

THE meeting was called to order in the Assembly Room of the Piedmont Hotel, the President, Former Assistant Surgeon General George Tully Vaughan, P.H.&M.H.S., in the chair and the other officers in their respective places.

The report of the Executive Council was then read by the Assistant Secretary. It stated that in addition to the annual meeting held on the previous evening six mail ballots had been held during the year and that seventy-eight new Active and Associate Members had been elected, recommended the election to Corresponding Membership of Colonel Rafael Caraza, Mexican Army, Colonel Francisco deP. Echeverria, Mexican Army, Lieutenant Colonel M. W. H. Russell, R.A.M.C., Lieutenant Colonel Jose Barbosa Leão, Portuguese Army, Major Ernest A. LaBel, Canadian Army, and recommended the amendment of Section 3, Article III of the Constitution to read as follows:

Section 3. Active Membership is limited to commissioned medical officers of—

1. The United States Army;
2. The United States Navy;
3. The United States Public Health & Marine Hospital Service;
4. The United States Volunteers; and
5. The National Guard and other state troops.

Active members may retain their membership, should they be honorably discharged from the service in which they have been commissioned.

Reference to the Publication Committee of all papers read by title without motion and the adoption of the usual time limit of twenty minutes for papers was recommended.

After discussion by Surgeon C. P. Wertenbaker, P.H.& M.H.S., Medical Director John C. Wise, U.S.N., Major Charles Lynch, U.S.A., and Colonel Joseph K. Weaver, N.G.Pa., the report was adopted.

The TREASURER read a summary showing a balance of $6,539.32 from the last report, receipts of $3,787.70 during the year, making a total of $10,327.02, expenditures of $3,592.21 and exhibited a certified check for $6,734.81 balance on hand, an increase notwithstanding the hard times of $195.49 during the year.

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The report was received and referred to an Auditing Committee consisting of Medical Director John C. Wise, U.S.N., Major Jefferson R. Kean, U.S.A. and Captain George Morgan Muren, N.G.N.Y.

The SECRETARY and EDITOR then reported that during the Association year of 1907-1908, the work of his office had been pursued without cessation. With the growth of the Association and the further development of the journal, the time and labor involved in conducting his work had continued to progressively increase, although every measure tending to economy in labor, as well as in money, had been employed.

He mentioned the active efforts for recruiting the membership of the Association which had resulted in the addition of seventy-eight new members.

He commented upon the development of the journal and complimented the Association on having in THE MILITARY SURGEON the most useful as well as the most attractive military medical journal in existence.

He referred to the effect upon the advertising department of the hard times and stated that for the first time since the allowance was made in 1906 it had been necessary to draw upon the treasury for the full amount of $600.00 authorized at that time, a draft which he was glad to learn had in no way prevented the added accumulation of the surplus. The receipts of his office were $4,085.07, the expenditures were $3,922.01 and a balance of $163.06 remained. A detailed and minute account of all receipts and expenditures, together with duplicate vouchers for the latter was submitted. On motion the report was accepted and the accounts referred to an Auditing Committee consisting of Medical Director Manly H. Simons, U.S.N., Colonel Joseph K. Weaver, N.G.Pa. and Acting Assistant Surgeon William H. Marsh, P.H.&M.H.S.

The LITERARY COMMITTEE reported through Captain J. C. DeVries, N.G.N.Y., that a large amount of work had been done during the year and presented the program as the result of its efforts. The report was adopted with thanks.

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The COMMITTEE OF ARRANGEMENTS reported through Colonel George Brown, N.G.Ga., concerning the preparations which had been made for the entertainment of the Association. These events and the manner in which they were carried out are described in the department of Editorial Expression under the caption of "the accessories at Atlanta." On motion the thanks of the Association were tendered to the committee and the opening hour for the afternoon session was deferred until four o'clock in order to permit the members to engage in an automobile excursion tendered by citizens of Atlanta.

The NECROLOGY COMMITTEE presented a report which was read by Lieutenant Colonel George Paull Marquis, Ill.N.G., for the chairman, Major Samuel C. Stanton, who was unavoidably detained; the report announced the deaths during the year of fourteen members as follows:

Lieutenant Colonel George Wheaton Carr, R.I.M.
Colonel Henry O'Donnell, Kans.N.G.
Major Julian LaPierre, Conn.N.G.
Medical Director John Hosea Babin, U.S.N.
Captain William Nathan Belcher, N.G.N.Y.
Lieutenant William Alexander Gordon, Jr., Wis.N.G.
Colonel Nicholas Senn, Ill.N.G.
Colonel Henry Lippincott, U.S.A.
Lieutenant Stacy Dwight Williamson, N.G.N.Y.
Major William Rudolph Steinmetz, U.S.A.
Generalarzt Friederich von Esmarch, Prussian Army.
Major Carlton E. Starrett, Ill.N.G.
Lieutenant Colonel H. Bryon Baguley, W.Va.N.G.
Assistant Surgeon William Mavel Nickerson, U.S.N.

Upon motion, the report was accepted and the dead honored by a rising vote.

The ENNO SANDER PRIZE MEDAL BOARD OF AWARD reported in the absence of any of the board through the Secretary, who stated that a majority of the board had voted to award the prize to the author of an essay presented under the nom de plume of "Sanitas;" one member of the board, General A. A. Woodhull, U. S. A., voting in the negative because

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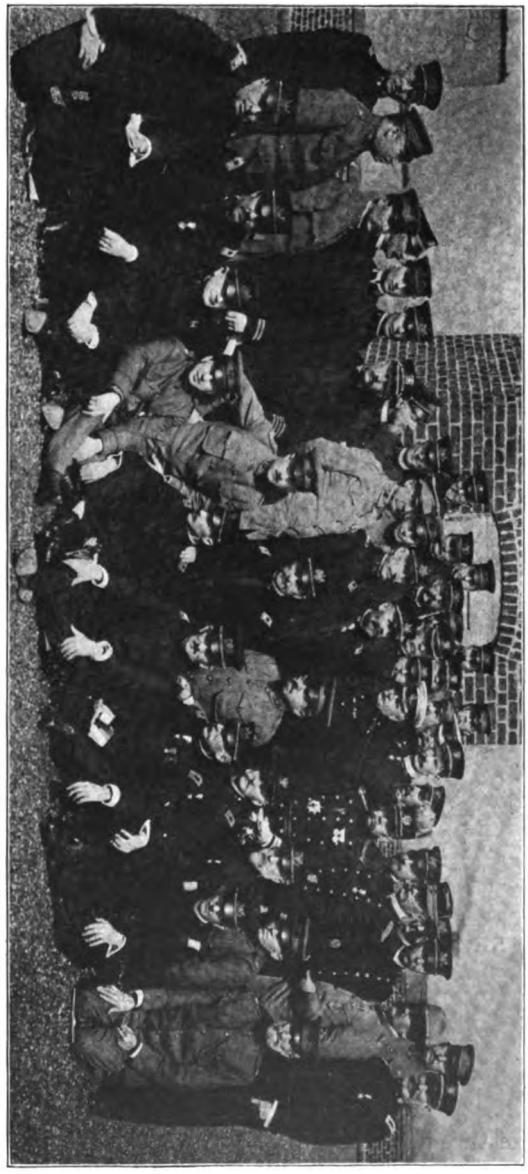
in his opinion the essay was not sufficiently military in character. The President then opened the envelope containing the card of the successful competitor and announced that the medal had been awarded to Passed Assistant Surgeon William Colby Rucker, P.H.& M.H.S., which was received with applause. The Assistant Secretary in the absence of the author then read a twenty minute abstract of the essay, the whole of which appears in this issue of THE MILITARY SURGEON.

A paper upon Iron Aristol for Chronic Skin



A Group of Members in Attendance Upon the Seventeenth Annual Meeting Taken Upon the Roof of the Piedmont Hotel.

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Ulcers was then read by Passed Assistant Surgeon M. J. White, P.H.&M.H.S.

A description of the Card System as Adapted to Property Accounts was then read by Brigadier General Charles C. Foster, Surgeon General of Massachusetts, and discussed by Lieutenant Colonel G. P. Marquis, Ill.N.G., Lieutenant William Gray Schauffler, N.G.N.J., Colonel Valery Havard, U.S.A., Major Henry Aaron Jones, R.I.M., and Major Herbert A. Arnold, N.G.Pa.

Lieutenant A. H. Lindorme, N.G. Ga., Chairman Committee of Arrangements.

It was moved and carried that the medical profession of Georgia and any visiting physicians be tendered the privileges of this meeting.

There being no further business, the meeting adjourned at 11:45 a. m.

SECOND SESSION, TUESDAY AFTERNOON, OCTOBER 13, 1908

THE afternoon session was called to order by the Second Vice President, Colonel Joseph K. Weaver, N.G.Pa., at 4 p. m., Tuesday, October 13, 1908.

The first paper on the program was upon Hypodermic Anesthesia (Historical), by Former Acting Assistant Surgeon William Thomas Thackeray, U.S.A., which was discussed by

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Major Thomas J. Sullivan, Ill. N.G., and Captain G. Morgan Muren, N.G.N.Y.

Invitations extending the privileges of the Atlanta Athletic Club and the East Lake Country Club were accepted with thanks.

The following papers were read by title.

The Treatment of Fracture of the Jaw. By Major T. E. Carmody, Colorado National Guard.

Favus as Observed in the Inspection of Immigrants. By Surgeon J. B. Stoner, P.H.&M.H.S.

Cocaine, Its Relations to the Military Surgeon. By Passed Assistant Surgeon William Dunlop Owens, U.S.N.

Felon or Whitlow. By Former Acting Assistant Surgeon John Hudson Grant, U.S.A.

The meeting then adjourned.

PUBLIC MEETING, TUESDAY EVENING, OCTOBER 13, 1908.

THE Public Meeting was called to order in the Legislative Hall of the State Capitol, Tuesday evening, October 13, at 8:20 p. m. by Lieutenant A. H. Lindorme, N.G. Ga., Chairman of the Committee of Arrangements.

The music was furnished by the orchestra of the Fifth Regiment of the Georgia National Guard.

The usual invocation was delivered by Captain C. B. WILMER, chaplain of the Fifth Georgia Regiment.

Lieutenant LINDORME then introduced Judge MARCUS BECK who welcomed the visitors to the state of Georgia in the absence of Governor Hoke Smith.

Judge Beck's remarks were both eloquent and humorous and showed an appreciation of the position of the military surgeon in military experience only to be gained by actual service such as had been his own lot during the Spanish-American War.

An address on behalf of "The Medical Profession of Georgia" was then delivered by Dr. J. S. TODD whose professional experience compassed two wars to which an empty sleeve eloquently testified. He spoke of Long, of Battey and a host of other sons of Georgia whose deeds are memorable in the history of medicine.

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His address was extempore and it is to be regretted that it could not have been published in full.

The annual address of the President was then delivered by Former Assistant Surgeon General George Tully Vaughan, P.H.&M.H.S., who took for his subject "Suture of Wounds of the Heart." This address will be published in full in an early number of THE MILITARY SURGEON.

INSTALLATION OF FOREIGN DELEGATES.

Major JAMES EVELYN PILCHER, in installing the foreign delegates remarked in part that this is a red letter evening in the history of the Association. Never have we been so warmly welcomed and never have the glories of medical military men been so well characterized. If there were others to speak on behalf of the Association, I should not take upon myself that which I feel would be the wish of every member, to thank the good people who have so cordially received us.

For years military medicine has been aided by this Association which has many features of interest and value to the world. It has grown from a small organization to a large body including the four principal medical services of our nation. It has been one of the most important instruments in enabling the military medicine of the United States to accomplish the great results which are now a matter of history. But we have gone further and have developed an international feature. Each year there come to our meeting members of the medical corps of the armies of the other great nations. Japan and Russia, and China over and over again, have honored us with the presence of members of their medical corps. England never fails to be with us. France has brought the fleur de lys to us many times and oft; and so our sister nations are always friendly to us, and in this friendship represent that feeling of international comity in which military medicine hopes to be a great factor.

We have in our midst Colonel Alejandro Ross, a representative from Mexico, who has been with us twice before, and consequently will not be decorated tonight, as this was done four years ago. India also has sent us a representative in the person of

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Lieutenant Colonel W. H. W. Elliot who was decorated two years ago.

I hardly know what to say of that great nation from which we are largely an outcrop. I speak of that nation which has given us our life, our form of government which was brought here when the Pilgrims came to the rock bound coast of the east. I speak of that great country of which we are perhaps the greatest offspring nation, by whose wonderful colonization power the crosses of St. Andrew and St. George dot the world. We have with us tonight, Lieutenant Colonel M. W. H. Russell, R.A.M.C., a distinguished officer of the British service. We are proud that his government has seen fit to send an officer of so much distinction. Colonel Russell, in the name of the Association of Military Surgeons, I have the honor to inform you that you have been elected a Corresponding Member and in testimony thereof to pin this decoration upon your breast. In honoring you the Association not only honors itself but evidences the profound appreciation which it has of the great nation which you represent.

I said we had with us tonight one of our neighbors. We have a representative of Our Lady of Snows who reposes constantly in the arms of the United States formed by Alaska on the one side and New England on the other, so that the United States always feels toward Canada something of that interest which an admirer feels toward the lady of his affections. We are tonight honored by one who has been a member of the association since it was possible for officers of his service to enter our membership. We are glad that we have with us tonight a representative not only of the Gallic race but a Canadian of the Canadians. We are proud, Major LeBel, that you are with us and that your country has honored us by sending you to us. We are also glad that we can change you from an Associate to a Corresponding Member, and in placing this insignia upon your breast we know we are placing it where it will be worn with honor and credit.

Now I come to the last decoration of the evening, which is to be conferred upon Lieutenant Colonel Jose Barbosa

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Leão, an officer of that small country which for so many years has faced the storms of the Atlantic, but is more scientific and progressive than most of us understand. The great debt which the western hemisphere owes to early Portuguese navigators is brought to mind by this the first entrance of Portugal into the work of the Association of Military Surgeons of the United States and we trust that the results which came to the world of nations through the voyages of Vasco de Gama and his compatriots may be paralleled in the future of military medicine by the mutual relations now established between the military medicine of Portugal and of America. Colonel Leão, we are proud and glad to receive you and trust that the government of Portugal will permit you to wear this decoration and remembering the work which the medical corps of your army is doing, we honor ourselves in honoring you.

In closing Major Pilcher again adverted to the hearty appreciation with which the Association regarded the courteous reception which the members had received from the citizens of Atlanta.

Surgeon CHARLES POINDEXTER WERTENBAKER, P.H.& M.H.S., regretted that the Reflectoscope with which he had designed to demonstrate some remarks upon "The Use of the Reflectoscope in Teaching Sanitary Results and for the Amusement of Men and Officers" had not arrived. He described it however as a combination of mirrors and lenses by which an enlarged reproduction of any picture or printed matter could be thrown upon a screen similar to that used for stereopticon purposes. Surgeon Wertenbaker enlarged upon the value of such an appliance in the instruction of the troops in sanitary matters and dwelt upon its advantage as a means of providing for the men in garrison or on board ship that relief from monotony and ennui which is so important an element in military hygiene.

Lieutenant LINDORME then in a few appropriate words dismissed the audience which passed out accompanied by the strains of a closing march by the orchestra.

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FOURTH SESSION, WEDNESDAY MORNING, OCTOBER 14, 1908.

THE meeting was called to order by the President, Assistant Surgeon General George Tully Vaughan, P.H.&M.H.S., at 10:15 a. m.

Lieutenant Colonel Jose Barbosa Leão, of Portugal, made a brief congratulatory address to the Association, extending the felicitations of his country and comrades, and expressing appreciation of the honor done him on the preceding evening in making him a Corresponding Member of the Association.

On motion a vote of thanks was tendered to the delegate from Portugal for his interesting remarks.

Major Jefferson R. Kean, U.S.A., moved that the Association go into executive session at 2 p. m., which was carried.

A paper upon The Sanguinary Assault by United States forces upon the Moros at Bud-Dajo, Island of Jolo, P.I., as Observed by the Surgeon, illustrated by Maps and Weapons, was then read by Major Charles B. Ewing, U.S.A.

Some Hygienic Maxims for the Soldier in Camp and Field, were then presented by Colonel Joseph K. Weaver, N.G. Pa.

The paper was discussed by Major Charles Lynch, U.S.A., Major George H. Halberstadt, N.G.Pa., Lieutenant Colonel M. W. H. Russell, R.A.M.C., Major Ernest A. Le Bel, Canadian A.M.C., and Brigadier General Charles C. Foster, M.V.M.

A Segregating Latrine for Temporary and Semipermanent Military Camps was then demonstrated and described by Major George Sumner Crampton, N.G.Pa., and discussed by Major Herbert A. Arnold, N.G.Pa., Colonel Valery Havard, U.S.A., Captain C. Bruce Walls, Ill. N.G., Dr. Thomas D. Coleman, President of the Georgia State Medical Society, Major Thomas J. Sullivan, Ill. N. G., and Major Charles B. Ewing, U.S.A.

The following Nominating Committee was appointed:

Army, Colonel Havard.
Navy, Medical Director Wise.
P.H.&M.H.S., Surgeon Carrington.
Arkansas, Major Minor.
Colorado, Colonel Root.
Georgia, Major Lyle.
Illinois, Captain Walls.
Iowa, Major Fairchild.
Maine, Colonel O'Neill.
Maryland, Act. Asst. Surg. Marsh.
Massachusetts, General Foster.
Michigan, Captain Frazier.
Minnesota, General Stone.
Nebraska, Colonel Nicholson.
New Jersey, Lieutenant Schauffler.
New York, Captain DeVries.
North Carolina, Major Holmes.
Pennsylvania, Major Halberstadt.
Rhode Island, Major Jones.
Tennessee, Captain Nankivell.
Virginia, Major Lynch,
Wisconsin, Colonel Edwards.
Wyoming, Colonel Burgess.

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The meeting of the nominating committee was announced to take place immediately after the close of the afternoon session. The following papers were then read by title.

A Method of Disposing of Excrementitious Matter, Suitable for Temporary Camps. By Major Herbert A. Arnold, N.G.Pa.

Camp Sanitation. By Major Thomas J. Kirkpatrick, U.S.A.

The Study of Military Hygiene for the National Guard Officer. By Dr. Robert Smart, Former Assistant Surgeon, U.S.A.

Don't Swallow the Enemy, Don't Touch the Enemy, Don't Breathe the Enemy. By Captain Frank T. Woodbury, U.S.A.

The Administration of a Plague Campaign. By Passed Assistant Surgeon Rupert Blue, P.H.&M.H.S., Commanding plague suppressive measures in San Francisco, Cal.

The Executive Work of a Plague Campaign. By Passed Assistant Surgeon W. C. Rucker, P.H.&M.H.S., Executive Officer plague suppressive measures in San Francisco, Cal.

The Flea and Its Relation to Plague, with a synopsis of the Rat Fleas. By Passed Assistant Surgeon Carroll Fox, P.H.& M.H.S., Pathologist plague suppressive measures, San Francisco, Cal.

The Clinical and Post Mortem Diagnosis of Plague. By Passed Assistant Surgeon Carroll Fox, P.H.&M.H.S.

The Examination of Rats and the Practical Bacteriology of Plague. By Passed Assistant Surgeon G. W. McCoy, P.H.& M.H.S., Bacteriologist plague suppressive measures, San Francisco, Cal.

Rat Destruction. By Passed Assistant Surgeon C. W. Vogel, P.H.&M.H.S., Commanding the 5th Provisional Plague District, San Francisco, Cal.

Practical Rat-Proofing as an Anti-Plague Measure. By Passed Assistant Surgeon R. H. Creel, Commanding 6th Provisional Plague District, San Francisco, Cal.

The Conduct of an Anti-Plague District. By Assistant Surgeon J. R. Hurley, P.H.&M.H.S., Commanding 11th Provisional Plague District, San Francisco, Cal.

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Method of Making Sanitary Surveys in a Plague Campaign. By Acting Assistant Surgeon C. H. Woolsey, P.H.&M.H.S., Commanding 3rd Provisional Plague District, San Francisco, Cal.

Cleaning and Disinfection as Plague Suppressive Measures. By Acting Assistant Surgeon G. M. Converse, P.H.&M.H.S., Commanding 1st Provisional Plague District, San Francisco, Cal.

District Organization. By Acting Assistant Surgeon L. S. Schmitt, P.H.&M.H.S., Commanding 4th Provisional Plague District, San Francisco, Cal.

FIFTH SESSION, WEDNESDAY AFTERNOON, OCT. 14, 1908.

THE meeting was called to order at 2 p. m. in Executive Session, the President, Assistant Surgeon General George Tully Vaughan, P.H. & M.H.S., in the chair.

During the session the following business was transacted. The presentation of insignia to foreign delegates at this and at future meetings was authorized; the attire to be worn at the meeting limited to uniforms of the services by virtue of which admission was gained to the Association, or to civilian clothing; directing the Secretary to publish and issue to each member a copy of the Constitution and By-Laws with a list of the members showing the date and source of membership in each case; referring the report of the auditing committee on the Treasurer's accounts to the auditing committee of the Secretary's accounts for the verification of expenditures and vouchers, and endorsing the following Resolutions adopted by the Executive Committee of the American National Red Cross, October 18, 1907:

Whereas, By international agreement in the Treaty of Geneva, 1864, and the revised Treaty of Geneva, 1906, "the emblem of the Red Cross on a white ground and the words Red Cross or Geneva Cross" were adopted to designate the personnel protected by this Convention, and

Whereas, The Treaty further provides (Article 23) that "the emblem of the Red Cross on a white ground and the words Red Cross or Geneva Cross can only be used whether in time of peace or war, to protect or designate sanitary formations and establishments, the personnel and material protected by this convention," and

Whereas, The American National Red Cross comes under the regulations of this Treaty according to Article 10, "volunteer aid societies, duly recognized and authorized by their respective governments," such recogni-

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tion and authority having been conferred upon the American National Red Cross in the Charter granted by Congress, January 5, 1905, Sec. 2, "The corporation hereby created is designated as the organization which is authorized to act in matters of relief under said Treaty," and furthermore,

Whereas, In the Revised Treaty of Geneva, 1906, in Article 27, it is provided that "the signatory powers whose legislation should not now be adequate, engage to take or recommend to their legislatures such measures as may be necessary to prevent the use by private persons or by societies other than those upon which this Convention confers the right thereto of the emblem or name of the Red Cross or Geneva Cross,"

Be it Resolved, That the Executive Committee of the American National Red Cross requests that all hospitals. health departments and like institutions kindly desist from the use of the Red Cross created for the special purpose mentioned above, and suggests that for it should be substituted some other insignia, such as a green St. Andrew's cross on a white ground, to be named the "Hospital Cross", and used to designate all hospitals (save such as are under the Medical Departments of the Army and Navy and the authorized volunteer aid society of the Government), all health departments and like institutions, and, further,

Be it Resolved, That the Executive Committee of the American National Red Cross likewise requests that all individuals or business firms and corporations who employ the Geneva Red Cross for business purposes, kindly desist from such use, gradually withdrawing its employment and substituting some other distinguishing mark.

The Executive Session adjourned at 3.15 p. m. and the open sessions were resumed.

A paper upon Service Schools for the Militia was read by Captain G. Morgan Muren, N.G.N.Y., and discussed by Lieutenant Colonel George P. Marquis, Ill.N.G., Brigadier General Charles C. Foster, M.V.M., Major W. C. Lyle, Ga.N.G., and Colonel Valery Havard, U.S.A.

The Organization and Training of the First Aid Corps of the Philadelphia and Reading Coal and Iron Company and A New Model Mine Ambulance were then described by Major George H. Halberstadt, N.G.Pa.

This was followed by a paper upon The Origin and Condition of the Peoples who make up the Bulk of our Immigrants and the Probable Effect of their Absorption upon our Population, by Medical Director Manly Hale Simons, U.S.N.

The following papers were then read by title.

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A National Guard Practice March. By Major Buell S. Rogers, Illinois N.G.

Method for Recording the Surgeon's Orders in Hospital. By Former Acting Assistant Surgeon Harold D. Corbusier, U.S.A.

Researches upon the Cultivation of the Plasmodia of Malaria. By Captain Charles F. Craig, U.S.A.

Battleship Neurasthenia (?). By Surgeon Sheldon Guthrie Evans, U.S.N.

Change of Climate not Essential in Treatment of Pulmonary Tuberculosis. By Former Acting Assistant Surgeon Melville A. Hays, U.S.A.

Disease,—A Conservative Instrument of Nature. By Surgeon P. C. Kalloch, P.H.&M.H.S.

Perforation of the Intestines in Typhoid Fever—A Brief Review with a Report of Three Cases. By Passed Assistant Surgeon C. H. Lavinder, P.H.&M.H.S.

The Medical Log of the U.S.S. *Virginia* on the Cruise to the Pacific. By Surgeon Charles Henry Tilgham Lowndes, U.S.N.

A Plea for the Early Diagnosis of Pulmonary Tuberculosis. By Surgeon Barton Lisle Wright, U.S.N.

The meeting then at 5 p. m. adjourned.

SIXTH SESSION, THURSDAY MORNING, OCTOBER 15, 1908.

THE meeting was called to order by the Second Vice President, Colonel Joseph K. Weaver, N.G. Pa. at 10 a. m. in executive session.

During the executive session the following actions were taken: The Auditing Committee on the Secretary's accounts reported that the books of the Secretary and Editor were complete, minutely itemized, and invariably vouched, and that the items referred to it from the Committee on Treasurer's Accounts were uniformly accounted for as received and the amounts fully accounted for as expended, and the report was thereupon adopted. The report of the Auditing Committee on the Treasurer's Accounts specifying that in future all funds received except Journal

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receipts should be paid to the Treasurer, and that all expenditures on the part of that officer should be upon vouchers approved by the President was also adopted. An appropriation of $1,200.00 for the work of the Secretary and Editor was made, and a vote of confidence in that officer was adopted.

The Association then resumed its open session at 10.45 a.m.

A paper upon Sanatorium Management was read by Surgeon Paul M. Carrington, P.H.&M.H.S.

The reading of a paper upon A Mexican Litter Especially Adapted to Transportation from the First Line to the Dressing Station, by Lieutenant Colonel Alejandro Ross, Mexican Army, then followed.

The next event of the afternoon was the customary addresses by the representatives of foreign nations.

Lieutenant Colonel RUSSELL, R.A.M.C.—Mr. President and Members: I think that the eminence and value of this association and the work that is done is sufficiently proven by the fact that foreign governments send representatives to watch and learn from your proceedings. I had heard before I came from predecessors who have attended meetings how warmly they have been received and what profit and pleasure they have derived from your sessions. I was, therefore, not unprepared for a cordial welcome, but I think I can say that the realization has outstripped my anticipations. I must thank you all for your brotherly greeting. You have made me feel at home, than which I can give no higher commendation of your hospitality. I knew practically nobody, but I may now say that there are no states in which I could not find a friend whom I have made. I will not detain you, but I have thoroughly enjoyed my stay with you, and I have derived keen pleasure from my visit, but when I have been able to think over and digest the work, I feel that the profit I shall have derived will not be inconsiderable.

Lieutenant Colonel W. H. W. ELLIOT, I.M.S.—I want to say a word of thanks for the pleasant time I have had here. I was with you at Buffalo two years ago. I never dreamt I would get another nomination, and I was most agreeably surprised and

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jumped at the offer. I fear that under the circumstances it would be too much to expect a third nomination, but it is not altogether impossible. In any case I shall always have the most pleasant recollections of my two visits and always feel a satisfaction in expressing the privilege of being a corresponding member.

Lieutenant Colonel ALEJANDRO ROSS, Mexican Army.—Every time that I come to the states I have much pleasure to see this country, and I am also satisfied to be among the military surgeons, my friends and fellows, from whom I have learned much and will learn more. I have always presented some models of Mexican equipments, and have had the satisfaction of seeing that my words have been accepted. I ammuch obliged to this association for these meetings. One of my great pleasures is to show upon my breast the insignia of the Association. I keep this decoration with a deep sense of gratitude, and I consider it an emblem of the good fellowship and friendship of the military surgeons of Mexico and the United States. Having elected as corresponding members the Chief of the Medical Department and the Director of the Military Medical School of the Mexican Army, I declare that both officers are worthy this distinction as they have worked very much. I give the most expressive thanks in their names.

Lieutenant Colonel JOSÉ BARBOSA LEÃO of Portugal.—Mr. President and illustrious colleagues: How sorry I have been lately for being unable to speak English well enough to express fully my great pleasure and gratification in being present at your congress. But I am sure, you will excuse me and accept kindly my badly translated expressions which testify sincerely the high consideration and admiration of all my countrymen towards the immensely great people of the United States of North America, that beginning yesterday, as it were, to walk, are already seen running today in full speed on the van-guard of progress, and towards this astonishing people that do not know the impossible and have surprised the world with the incredible boldness of their mental conceptions. The Portuguese Government being highly obliged to the Government of the United States for the

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honor of their invitation to be represented in this Congress, charged me with the commission as honorable as difficult, as thorny as pleasant, to come here and thank heartily your Government for the invitation extended by them to my country.

The military physicians in that little country of Europe called Portugal are also greedy for progress and animated by the legitimate ambition to accompany their colleagues in this enormous nation through the way of science and its practical applications.

Here I am then among you in this modern American Athens invested with the honor to salute the Government of this great people in the name of the Government of Portugal, in the name of the Portuguese military physicians and in my own. I was charged at the same time with the mission to transmit the most sincere protestations of wishes of my country for the success and splendor of the work of this meeting, from which, no doubt, a great benefit shall derive for the army and for the interests of humanity the world over.

I rejoice to think that the military physician everywhere lives in a higher atmosphere than that which is apt to be disturbed in the dusty arena of politics and by the various phases of international strife and competition. We are all cultivators of a science that has no native country, that has no home. We are all apostles of the most holy religion, that of charity. When we unite, we can but do work of a great value and practical interest. Our efforts are always for the best interests of soldiers and humanity the world over. The illustrious representatives of military medicine join here, assured of attention to their indubitable scientific authority. I trust then I shall carry from here to my country the most pleasant remembrances of this town an and important contribution of sound erudition.

I accept with pride the honor as great as unmerited you have conferred upon me in making me a corresponding member. I am sorry I cannot return the greatness of the offer with a visible profitableness of a scientific work, but I do assure you that I will endeavor to follow you, at least at a distance and I will never

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forget your civilities. Now I cannot say more than, Thank you very much.

Major ERNEST A. LEBEL, of Canada.—I am extremely thankful to you, Mr. President, for offering me the privilege of making a few remarks to your Association at its seventeenth congress, and have no doubt that such meetings will cement the friendly relations already existing between the people of Canada and your country, and will tend to draw closer the ties which bind together the medical faculties of both countries.

We Canadians have just founded also an Association of Military Surgeons and sincerely hope that it will work in harmony with yours in a near future.

For two obvious reasons am I happy to have responded to your kind invitation, first because of the great pleasure it affords me to meet old friends, since I have attended your congress in Boston in 1903; and next because I am the bearer of the best wishes of the Canadian Militia for the success of the present congress.

Now, Mr. President, may I be permitted to throw out the suggestion that the rules of our Association be so amended or modified as to allow the latter to hold its sittings occasionally in Canada, and, in the premises, may I express the wish that you meet next year or in a near future in Quebec, the Old Rock City of Champlain where both citizens and municipal authorities, will endeavor to keep up the standard of their repute for unbounded hospitality and courteousness, and where you will be afforded all the facilities for visiting and studying the most historic city and environs on the Continent.

In conclusion I desire to express my personal wish for the entire success of this Congress which is called upon to work in the interests of military surgery and hygiene the world over and so apt to develop amicable relations between all the nations whose distinguished representatives honor us by their presence on this solemn occasion, and whose aim is to work together not only for the progress of military medical service, but as well for the general welfare of humanity.

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On motion, the Association, while regretting its inability to meet on Canadian soil, voted to send a delegate to the next meeting of the Canadian Military Medical Association.

The following resolutions were proposed by Major James Evelyn Pilcher and unanimously adopted:

Resolved, that in view of the courteous treatment received by the members of the Association during the Seventeenth Annual Meeting, the hearty and cordial thanks of the Association be extended

1. To Lieutenant A. H. Lindorme, N.G.Ga., Chairman of the Committee of Arrangements, Colonel George Brown, N.G.Ga., Chairman of the Committee on Entertainment, and the citizens of Atlanta for the work which has been done in connection with our social entertainment.

2. To Judge Marcus Beck and Dr. J. S. Todd, whose interesting addresses formed so valuable a feature of the public meeting.

3. To the Fulton County Medical Society for the delightful reception given the Association and to the authorities of the Georgia State Fair for opening the gates of that institution to our members.

4. To the officers of the National Guard of Georgia and the ladies associated with them in the conduct of the barbecue and accompanying festivities at Oakland City.

5. To the Capital City Club, the Transportation Club, the Atlanta Athletic Club and the East Lake Country Club for extending the courtesies of their houses to the Association.

6. To the managers of the Piedmont Hotel for the uniform civility and hospitality which they have displayed.

General A. J. Stone then moved the following resolution which was seconded and adopted:

Resolved, that the thanks of the Association be extended to the officers who have conducted its affairs so successfully during the present year.

Colonel Valery Havard, Chairman of the Nominating Committee then presented the following report.

The Nominating Committee has the honor to report the following nominations for officers during the Association year 1908–1909.

President, Rear Admiral PRESLEY M. RIXEY, U.S.N.

First Vice President, Colonel JOSEPH K. WEAVER, N.G.Pa.

Second Vice President, Colonel WILLIAM C. GORGAS, U.S.A.

Third Vice President, Surgeon C. P. WERTENBAKER, P.H.&M.H.S.

Treasurer, Major HERBERT A. ARNOLD, N.G.Pa.

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The Secretary, Major JAMES EVELYN PILCHER, being, under the Constitution, a permanent official, no nomination is made for that office.

Place of meeting for 1909—Washington, D. C.

Time of meeting to be fixed by the Executive Council.

The report was adopted and the Secretary by unanimous vote instructed to cast the ballot of the Association for the nominees presented, which was done, and the election thereby completed.

General A. J. Stone and Colonel Valery Havard were appointed a committee to escort the President-elect Surgeon General Presley Marion Rixey, U.S.N., to the chair.

Surgeon General Presley Marion Rixey, President-elect, then addressed the Association as follows:

FELLOW COLLEAGUES.—In accepting the presidency of this organization for the ensuing year, I wish, as the representative of the Medical Corps of the Navy, to thank you for the honor conferred upon that branch of the service and to express my appreciation of the personal compliment. I deeply regret that I have been unable in the past to take as active a part in the work of the Association as I should have liked, but it has been my pleasure as far as possible to see that the Navy was furnishing its quota towards its success.

I am deeply sensible of the responsibilities devolving upon the incumbent of this office, and in that consciousness I assure you that, so far as lies within my power, I shall, in the future as I have in the past, endeavor to do everything to promote the interest and welfare of this growing and important Association of Military Surgeons.

No one who has intelligently watched the trend of the times and given serious thought to the full meaning of medical advance —both within its own scientific sphere of activity and in relation to human enterprise the world over, particularly the development of the art of war on land and sea and the growing complexity of life—can fail to realize the incalculable value of such an association. The power for greatest benefit from the truths which medical science has given and is daily giving us rests upon the

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condition of co-operation in their application, and in no field of endeavor is this requirement more urgent than in the medico-military service, in which the first duty of those charged with the supervision of health conditions in the land and sea forces is that of the hygienist. Problems of preventive medicine, though the same in principle everywhere, differ in many respects, as between civil and military life, in their practical applicability, and the dictates of sanitary science must be adapted to the varying circumstances and inalienable conditions of special services. What more essential provision, therefore, than this annual gathering of representative medical men who have a common interest in medico-military matters. A conflict of interests should in the very nature of things be impossible, for no matter what the peculiar interests of the various factors of this organization may be, the very foundation upon which we have builded is community of interest and a greater or less interdependence, and we should be growing closer together as time passes. The reserve force which the National Guard has always constituted in relation to the Army has now been brought into closer affiliation with that arm of the government service. It is hoped that, in the near future, the Naval Militia may participate in a similarly improved relation as the reserve force of the Navy. We have long realized the value of the Naval Militia organizations of the various states as a reserve source of surgeons, trained in naval service conditions, for purposes of medical department expansion in time of national need, and every means within the limits of the law looking to the establishment and continuance of a closer relation has been employed. Effort was made last year to give the medical officers of the Naval Militia a national status, and effort will be continued in this direction, but until Congress recognizes the need to provide for this desirable change by liberal legislation, we must depend solely upon the opportunities which these meetings offer for a better acquaintance and a clearer understanding of our mutual aims. Here, and through the agency of the Association journal, new ideas are presented and pertinent problems are discussed so that, besides the pleasure and refreshment of professional and social intercourse, there is the

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salient feature of individual intellectual profit by which each service and the Government as a whole benefits immeasurably. The Association of Military Surgeons today wields a potent influence for the nation's welfare, and it is rapidly developing toward the realization of its destiny as a co-ordinating institution of all state and national medico-military organizations, and as a universal school of military medicine and hygiene. It has a splendid future if we will work together in unity of aim for its best possibility, and I entertain the ambition that, during my administration, progress will be no less marked than under the guidance of my esteemed predecessors.

After the presentation of the following papers by title, the Association adjourned sine die.

The Development and Maintenance of a Militia Hospital Corps. By Captain J. Carlisle DeVries, N.G.N.Y.

The Care of the Refugees from the Chelsea fire, by Captain P. F. Butler, M.V.M.

A Diagram of the Medical Organization, U.S. Army, for Service with a Division; Designed for the Purpose of Instructing the Hospital Corps and to Show Where the American National Red Cross Can be of Assistance in Time of War. By Lieutenant G. H. Richardson, U.S.M.R.C.

The Remote Effects of Exposure to the Direct Rays of the Sun. By Lieutenant Colonel Edward Champe Carter, U.S.A.

Medical versus Surgical Treatment of Amebic Dysentery. By Passed Assistant Surgeon John Milton Holt, P.H.&M.H.S.

Military Sanitary Problems in the Philippine Islands. By Colonel Louis Mervin Maus, U.S.A.

Retrospect of Cooperative Work of the Medical Services of the Government. By Surgeon H. W. Austin, P.H.&M.H.S.

The Situation of the Medical Corps in the Austrian Army. By Major George E. Bushnell, U.S.A.

Public Health and Military Medical Department of the United States. By Surgeon Lloyd W. Curtis, U.S.N.

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Some Recent Scandinavian Military Medical Literature. By Major Hans Daae, Norwegian Army.

The Steel Frame in the Transportation of the Disabled. By Colonel C. de Mooy, Retired, Netherlands Army.

Variola Hemorrhagica. By Passed Assistant Surgeon R. E. Ebersole, P.H.&M.H.S.

A New Detached Service Medical Outfit. By Captain Jesse R. Harris, U.S.A.

The Disposal of All Liquid Refuse of the Otis Excavators and of the Sanitary Carts in a Maneuver Camp, by Evaporation on Heated Rocks. By Major Henry I. Raymond, U.S.A.

Sanitary Service of the Swiss Army. By Captain Louis C. Duncan, U.S.A.

A Simple Method of Transporting Drugs, Surgical Instruments, and Dressings into the Field for a Few Day's March. By Lieutenant Harold G. Goldberg, N.G.Pa.

Sanitary Service in the Field. By Colonel H. Nimier, French Army.

The Civilian Aid Society in its Relation to the Military Service. By Major James Evelyn Pilcher, late U.S.V.

The Organization and Initial Work of the Medical Department when Volunteers are Called into Service. By Major Frederick P. Reynolds, U.S.A.

The New Sanitary Regulations of the Swedish Army. By Captain Robert L. Richards, U.S.A.

The Field Hospital of the Austrian Red Cross. By Stabsarzt Dr. Johann Steiner, Austro-Hungarian Army.

A Plea for Specialism. By Captain Edward B. Vedder, U.S.A.

The Sanitary Service in the Third Japanese Army, the Besieging Army at Port Arthur. By Captain Edward B. Vedder, U.S.A.

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Contemporary Comment.

PROPHYLAXIS IN VENEREAL DISEASES.

IN a lecture (*Allgemeine Militaerztl. Ztg.*) before the scientific association in Temesar, Dr. Ferenezy treats this important question in detail. That venereal diseases were contagious was known in ancient times. The earliest known protective measures consisted in washing the penis after coitus, or urinating shortly after intercourse. The still popular method of washing the penis with freshly passed urine as a prophylaxis against venereal diseases was recommended by Fallopius. The cundom introduced by a physician in the middle of the last century is most frequently used at the present time. The discovery of this method of preventing venereal infection received little credit, yet its usefulness cannot be denied. Crede's two per cent silver nitrate solution for blennorhea of the eyes of the newborn and Neisser's protargol were soon popular anti-gonorrheal remedies. The writer has used prophylactic measures in two artillery regiments for one year and succeeded in reducing the venereal diseases one half of those of the preceding year. In the Artillery Regiment No. 20, eighty-four men had venereal diseases in 1905; forty-three in 1906 when prophylaxis was resorted to. In the Artillery Regiment No. 7, 102 men had venereal diseases in 1905 and sixty-five in 1906. The figures forty-three and sixty-five do not indicate any inefficiency of the prophylactic measures as it was impossible to treat some of these cases on account of maneuvers, target practice and furloughs, and some willfully neglected to take the proper precautions. A convenient systematic plan to carry out prophylaxis in the barracks is of prime importance. The remedy used is secondary. The soldiers must be made acquainted with the danger and consequences of gonorrhea. It is especially important to win their confidence and cooperation in the matter. The author's method is most useful and caused no difficulties. A box, containing the necessary solutions and cotton, with directions was placed in the bath room. The soldier, coming to the barracks

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after coitus goes to the bath room, gets his bichloride solution and thoroughly washes his penis, then injects, with a medicine dropper, a 1 per cent solution of nitrate of silver. The medicine droppers are kept in a 3 per cent boric acid solution in which they are placed after they have been cleaned with cotton. For prophylaxis during maneuvers, the writer had prepared small rods consisting of silver nitrate ichthyol and cocoa-butter. Each man received ten or twelve of these and was told to place one in the fossa navicularis after coitus and by gentle stroking cause it to melt. This is a very simple, quick and easy method. If the rods are introduced shortly after intercourse they may exert their bactericidal action at a time when the germs have not yet passed into the cells. Cleanliness in sexual intercourse does much in preventing venereal diseases. In the effort to eliminate venereal diseases every remedy should be welcome. A recent order from the War Department makes venereal prophylaxis obligatory.—F. J. CONZELMANN.

TREATMENT OF SYPHILIS BY ARYLARSONATES.

IN *The British Medical Journal* Colonel F. J. Lambkin, R. A.M.C., arrives at the following conclusions with regard to the use of arylarsonates in syphilis:

1. That there is strong reason to believe that, given early and in sufficient quantities, they can be looked on as prophylactic in the majority of cases against any further development of the disease.

2. That they undoubtedly delay and modify very remarkably the secondary symptoms.

3. That they appear to exert a marked beneficial effect on all syphilitic ulcerations.

4. Finally, without entering into the question as to whether the treatment of syphilis by arylarsonates is as efficacious or likely to become more so than that by mercury, which time and further experience can alone tell us, I consider that one important fact has been established—that is, that in these salts we are now in possession of a second specific for syphilis and need not add that the importance of this can not be well exaggerated. With regard to the therapeutic action of arylarsonates on syphilitic lesions, the work of several observers has indicated that they do not kill the germ (as mercury is supposed to do), but exert their influence in strengthening the phagocytic defence of the host.

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MILITARY MEDICINE.

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Georgia State Capitol.

Editorial Expression.

THE ACCESSORIES AT ATLANTA.

AS had been anticipated Atlanta proved to be a most delightful location for the meeting of the Association of Military Surgeons. The beautiful city and its delightful climate appeared to the best advantage. All of the entertainments which had been planned passed off smoothly and delightfully.

The automobile ride through the city and its suburbs, which was scheduled for Tuesday afternoon, was a most agreeable affair. But one serious accident occurred to mar the complete enjoyment of the event, an accident which narrowly escaped being a tragedy but which in its finality became a comedy. On

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the way from the hotel out through the city and suburbs the entire party was stopped at the State Capitol where was taken one of the finest group pictures the writer has ever seen. This, in very greatly reduced form, is reproduced herewith, but the original should be seen to be appreciated. After the evening entertainment many of the members were escorted to the Capitol City Club where the doors were opened wide to them with a hospitality which never failed during the remainder of the week.

On Wednesday evening the reception at the supurb Piedmont Driving Club was a scene long to be remembered by those who had the good fortune to be present. Every accessory which

Capital City Club.

might prove of effect in entertaining the guests was present. The beautiful ballroom was in unsurpassed condition and those members of the Association in whom the youthful fires still burn enjoyed the fine music and finer floor to the full.

By the adoption of the unusual plan of advancing papers from time to time it came about that the scientific work was completed on Thursday morning, which left Thursday afternoon free for a visit to the Georgia State Fair, which was in ses-

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A Group of Members and Ladies in Attendance upon the Seventeenth Annual Meeting Taken upon the Steps of the Georgia State Capitol.

sion at the time of the meeting. The Association were guests of the State Fair authorities and received from them every courtesy. The Grand stand and all the other attractions of the Fair were free to the members and a great deal of interest was felt in this feature of the visit—a feature entirely unlike anything else which had ever been experienced at the Association meetings.

Thursday evening was left open for the personal entertainment of the various members by citizens of Atlanta and to afford an opportunity for the indulgence of personal tastes upon the part of the members. This was a feature most heartily welcomed and most cordially enjoyed.

The climax of the social accessories however culminated in the barbecue at Oakland City. A special trolley was provided for the members of the Association which brought them within a few yards

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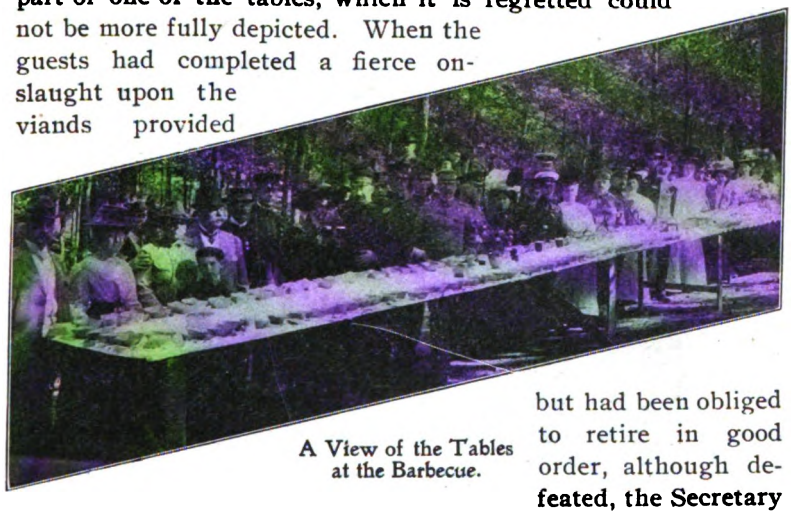
of the rustic park in which they found mutton and pork roasting whole over an old fashioned wood fire, a process which had been going on for many hours in order to bring out the exact shade of delicacy which was essential to the full development of the proper flavor. Here a large number of physicians and military men gathered to participate in the function and when the Brunswick stew—a most delicious concoction of almost everything culinary—was served, the long tables were filled with hosts and guests. The view shown herewith exhibits but one side of a part of one of the tables, which it is regretted could not be more fully depicted. When the guests had completed a fierce onslaught upon the viands provided but had been obliged to retire in good order, although defeated, the Secretary of the Association took the chair by request and presented the foreign delegates to the assembled company. These gentlemen came to the front nobly and responded to the occasion in gallant and eloquent terms. Particular mention must be made of Lieutenant Colonel Leão of Portugal who displayed to an eminent degree that preparation so essential to efficiency in a soldier and whose well worded phrases and eloquent diction already prepared in manuscript found a most enthusiastic reception. Indeed all of the foreign representatives commended themselves most heartily to the Association and the citizens of Atlanta alike.



A View of the Tables at the Barbecue.

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As the day wore on the party diminished in numbers until in the latter part of the afternoon it was sufficiently reduced to be accommodated in two tally-hoes, which had been provided through the courtesy of one of the officers of the Georgia state forces and upon which the party coached to Fort McPherson and through many beautiful streets and charming drives, a most fitting termination to a most memorable series of entertainments.

The Association was very fortunate in the location of all its sessions. The Piedmont Hotel was a beautiful structure and the courtesy of its employees and the perfection of its service was

Entrance to Fort McPherson, near Atlanta, Ga.

everything that could be desired. The Convention Hall on the tenth floor was a most excellent place for the meeting and could have accommodated three times the attendance at its sessions.

The Legislative Hall, in the State Capitol, in which the Public Meeting was held, was of course peculiarly adapted to the occasion and the Capitol itself, which was thrown open to the guests, excited much interest, being probably the only State Capitol which presents in its rotunda the portrait of a country doctor as one of the most distinguished heroes of the state—Dr. Crawford W. Long, one of the discoverers of anesthesia by sulphuric ether.

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Many of the southern states were represented, although, as a whole the Association was disappointed in not having a larger attendance from the south. The north and west were well represented as usual and the most northern, as well as the most eastern state, had an unusually large delegation.

A plan much discussed and with great approval for future meetings was that the Association should convene on alternate years in Washington and that at those meetings the presidency

Piedmont Hotel.

should be held in rotation by medical officers of the national services, while on the other years the presidency should be held by an officer of the national guard in whose state the meeting should be held. This of course could not be embodied in the Constitution nor was any attempt made to officially adopt it by the Association, but the suggestion that it become an unwritten law, like that which requires a President of the Association to be present at the meeting at which he is elected to the presidency, as well as the one at which he presides, was regarded with great favor.

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THE OFFICERS OF THE ASSOCIATION, 1908-1909.

THE inevitable change consequent upon the progress of time has brought to the head of the Association one of its most distinguished and capable members in the person of Rear Admiral Presley Marion Rixey, who was appointed Surgeon General of the Navy on the tenth of February, 1902. Admiral Rixey was born in Culpeper county, Virginia, on the fourteenth of July, 1852, and received his early education at schools in Culpeper and Warrenton. His family identified itself with the Confederate cause during the civil war which brought financial ruin upon its members in company with so large a proportion of our old southern families. Undaunted by difficulties, however, he sought and achieved an education, both general and professional, receiving the doctorate in medicine from the University of Virginia in 1873. He then undertook to extend his practical acquaintance with his profession by attendance upon clinics and hospitals in Philadelphia during the remainder of the year, presenting himself before the naval examining board early in 1874 as a candidate for appointment in the medical corps of the Navy.

He was commissioned Assistant Surgeon in the navy on the twenty-eighth of January, 1874, and set out upon that long period of service which has been crowned with the highest honors attainable in his corps and in the Association of Military Surgeons. He was first assigned to duty on the Receiving Ship *Sabine*, but soon transferred to the *Congress*, then on the European station and later at the Centennial Exposition at Philadelphia, where she represented the navy. He was detached in 1876 and ordered to the Philadelphia Naval Hospital, where he remained until he passed his examination for promotion to the grade of Passed Assistant Surgeon in 1877. He then took station at the Norfolk (Va.) Navy Yard as attending surgeon, where he served until assigned to a three years tour of special duty on the *Tallepoosa* in 1879. He was on the flagship *Lancaster* from 1884 to 1887 on the European and South Atlantic Stations, and on the *Dolphin* from 1893 to 1896. During the Spanish war he applied for active sea duty, but his services were

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deemed so essential in Washington that he could be spared only to make a brief voyage to Cuba on the ambulance ship *Solace.* The twelve years of service not enumerated above were passed on special duty as attending surgeon at Washington. In 1888 he was promoted to the grade of Surgeon and in 1900 to that of Medical Inspector and since his detail as Surgeon General to that of Medical Director.

During his long service in Washington he was honored with the confidence of many of the most prominent men of the country, and for the last nine years has been physician to the Executive Mansion. It was in special recognition of the value of his distinguished services in the latter capacity that President McKinley promised him the surgeon-generalcy of the navy when the next vacancy should occur, a promise which President Roosevelt fulfilled. In connection with his duty at the Executive Mansion, it became necessary for him to accompany the President upon all journeys taken by the Chief Executive, and thus it happened that he was in Buffalo when President McKinley was assassinated. He had been detailed by the President to accompany Mrs. McKinley to the Milburn house, whilst he received the people, so that he was not immediately at hand when the President was shot, but was promptly summoned so that he was present and assisted with the operation, and took official charge of the case. Here he displayed in the highest degree those qualities which evidenced not only professional acquirements of an entensive range, but executive ability and diplomatic faculties of a remarkable character. The skill and devotion which he displayed in the management of the case of the President and the almost equally exacting case of the President's invalid wife won for him the admiration and affection of the entire country.

Admiral Rixey is a member of the American Medical Association and a member by invitation of the Washington (D. C.) Medical Society. He has been an active member of the Association of Military Surgeons since 1895, and served successively through the various vice presidential chairs prior to his election as President at Atlanta.

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On the occasion of an explosion on the Spanish Caravel *Santa Maria* in the harbor of New York in 1893 he rendered prompt and generous assistance to the officers and crew of the vessel, a courtesy which the King of Spain, Alfonso XIII, recognized by decorating him with the Order of Naval Merit.

His thorough understanding of the needs of the service was evidenced by his prompt application to Congress for a material increase in the number of his corps. His request was accompanied by evidence of the necessity for the desired action so convincing that the proposed legislation was promptly enacted. He has also added greatly to the efficiency of the Hospital Corps, developed the Naval Medical School, and established a female nurse corps for his service. But perhaps the most important achievement of his administration is the recognition of the right of the medical officer to command, a prerogative which had been jealously monopolized during the previous history of the Navy by officers of the line. Now, however, medical officers not only command in the naval hospitals and other institutions pertaining to the medical department, but such authority has been granted to them, notwithstanding tremendous opposition, on hospital ships. The accession of Admiral Rixey to the Presidency of the Association augurs good fortune for the organization, which is sure to be developed and advanced by the sagacity, tact and ability which has characterized all the official acts of his successful career.

Much is expected of Admiral Rixey and there is no doubt in the minds of his friends but that he will justify their hopes in the administration of the affairs of the Association as he has already done in the conduct of the affairs of his Bureau.

Colonel JOSEPH K. WEAVER, Surgeon General of Pennsylvania, who was advanced to the First Vice Presidency, is one of the oldest and most faithful members of the Association whose loyalty to military surgery and whose distinguished administrative ability have been widely recognized by the organization which he has served so long and so efficiently. Under his guidance the Medical Corps of the Pennsylvania National Guard has never

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Surgeon General Presley Marion Rixey, U.S.N., President.

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Colonel Joseph K. Weaver, N. G. Pa., First Vice President.

failed to present a large delegation of active workers at each meeting. He has often presented papers himself and has never failed to provide one or two numbers on the annual program from the Keystone State. Colonel Weaver ranks high among the medical profession of Pennsylvania and in his own community. He is a trustee of Bucknell University and holds many other honorable and responsible positions, all of which have combined to create in him qualities which will go far toward making him one of the ablest and most accomplished officers of the Association.

Colonel WILLIAM C. GORGAS of the Army Medical Corps, was advanced to the Second Vice Presidency. His work as one of the Commissioners of the Panama Canal has given him a world-wide reputation, which manifested itself during the past year in his election to the Presidency of the American Medical Association. A rare combination of modesty, and initiative, geniality and force, Colonel Gorgas' position in the world has been won by supreme merit without adventitious assistance. The Association is glad to recog-

Colonel William C. Gorgas, U.S.A., Second Vice President.

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nize the value of his work and to join the profession in its admiration of his accomplishments.

Surgeon C. P. Wertenbaker, P.H.&M.H.S., Third Vice President.

Surgeon CHARLES POINDEXTER WERTENBAKER, P. H. & M.H.S., the new Third Vice President, has been a member of the Association of Military Surgeons since the meeting of 1893, at which the doors of the organization were first opened to officers of the regular services. He has been very active in Association work, having been present at most of the annual meetings since that time, in the majority of instances as an official representative of his service. Surgeon Wertenbaker was prior to his entry into the service for thirteen years a member of the Virginia state forces where he gained an amount of military experience that created in him a degree of military enthusiasm which has never been allowed to diminish. His work has been largely of a public health character, involving service in Cuba and Canada. He has administered successfully important quarantines, among which may be especially mentioned that at Atlanta in 1905 where his discreet and efficient conduct of the work commended him warmly to the citizens of the city in which he was afterwards honored by election to the office which he now holds in the Association.

Major James Evelyn Pilcher, Secretary and Editor.

Of the Secretary and the Treasurer much might be said be-

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cause they are the officers whose work continues throughout the year. The many hours of daily labor required to conduct the ad interim affairs of the Association no one who has not attempted it can understand. The inquiry of one correspondent "do you never slumber nor sleep?" is right appropriate to the situation, for the work requires constant care, watchfulness and labor. All these qualities have been exercised *con amore* during the past and no diminution in the zeal and earnestness with which they have been brought forward during the past years will be permitted during the coming year.

Major Herbert A. Arnold, Treasurer.

ARMY MEDICAL CORPS EXAMINATIONS.

THE Surgeon General of the Army announces that the first of the preliminary examinations for the appointment of first lieutenants in the Army Medical Corps for the year 1909 will be held on January 11, 1909, at points to be hereafter designated.

Full information concerning the examination can be procured upon application to the "Surgeon General, United States Army, Washington, D.C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between twenty-two and thirty years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training or its equivalent in practice. The examinations will be held concurrently throughout the country at points where boards can be convened. Due consideration will be given to localities

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from which applications are received, in order to lessen the traveling expenses of applicants as much as possible.

The examination in subjects of general education (mathematics, geography, history, general literature and Latin) may be omitted in the case of applicants holding diplomas from reputable literary or scientific colleges, normal schools or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School.

In order to perfect all necessary arrangements for the examination, applications must be complete and in possession of the Adjutant General on or before December 10, 1908. Early attention is therefore enjoined upon all intending applicants. There are at present fifty-seven vacancies in the Medical Corps of the Army.

HEATSTROKE.

DURING a period of ten years Steinhausen (*Roths Jahresbericht*), studied in 443 cases the psychical and nervous conditions following heatstroke. Among the psychical diseases coma and delirium were frequently observed. During the convalescing period characteristic disturbances of ill humor and depression, crying spells, feeling of oppression in the chest, tremor, tonic and clonic twitching of certain groups of muscles, swelling of muscles, unilateral perspiration of the body and other vaso-motor disturbances occurred. Increased suggestability, deficiency of will power and now and then a stuporous behavior was observed. Hysteria is one of the most common nervous diseases following heatstroke. Neurasthenia is often accompanied by marked features of hysteria. The character of the psychical and nervous conditions following heatstroke point to an intoxication, rather than a simple exhaustion.—FRED J. CONZELMANN.

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News of the Services.

THE following officers were elected to membership in the Association of Military Surgeons of the United States at the last regular quarterly ballot.

ACTIVE.

Lieutenant Charles W. Decker, California N.G.
Captain Frank W. Foxworthy, Indiana N.G.
Acting Assistant Surgeon Morton R. Gibbons, P.H. & M.H.S.
Lieutenant Howard H. Johnson, United States Army.
Lieutenant Lloyd L. Jones, Ohio N.G.
Passed Assistant Surgeon, Wm. Dunlop Owens, United States Navy.
Acting Assistant Surgeon Herman J. Schlageter, P.H.&M.H.S.
Captain John W. Sluss, Indiana N.G.
Lieutenant Charles H. Stearns, Medical Reserve Corps.
Assistant Surgeon George Carrol Thomas, United States Navy.
Captain F. M. C. Usher, United States Army.

ASSOCIATE.

Captain Gustavus Maximilian Blech, formerly Illinois Reserve Troops.
Captain Herman A. Haubold, formerly United States Volunteers.
Acting Assistant Surgeon George E. Maurer, formerly United States Army.

The following officers were elected to membership at the Atlanta Meeting.

ACTIVE.

Captain M. Burwell Abernethy, North Carolina N.G.
Major J. W. Duncan, Georgia N.G.
Captain Jesse R. Harris, United States Army.
Lieutenant Harry A. Haze, Michigan N.G.
Lieutenant Wm. D. Lyman, Michigan N.G.
Captain Benjamin E. Pearce, Georgia N.G.
Captain M. Toland Sime, N.G. Pennsylvania.
Captain Herman H. Tuttle, Illinois N.G.
Captain B. J. Witherspoon, North Carolina N.G.
Lieutenant Ira C. Young, Missouri N.G.

CORRESPONDING.

Colonel Rafael Caraza, Mexican Army.
Colonel Francisco deP. Echeverria, Mexican Army.
Lieutenant Colonel José Barbosa Leão, Portuguese Army.
Major Ernest A. LeBel, Canadian Army.
Lieutenant Colonel M. W. H. Russel, British Army.

Assistant Surgeon W. H. Abbott, P.H.&M.H.S., granted 15 days leave.
Colonel G. W. Adair, U.S.A., granted one month's leave.

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Colonel Charles Adams, formerly Secretary of the Association of Military Surgeons of the United States, has been appointed Surgeon General of Illinois in place of the late Colonel Nicholas Senn, his intimate friend.

Assistant Surgeon D. G. Allen, U.S.N., ordered from duty to instruction at the Naval Medical School.

Captain J. H. Allen, U.S.A., granted one month's leave in the United States.

Passed Assistant Surgeon L. H. P. Bahrenberg, P.H.&M.H.S., granted 14 days extension of leave.

Surgeon P. H. Bailhache, P.H.&M.H.S., granted 15 days leave.

Lieut. J. C. Ballard, M.R.C., ordered to active duty at Fort Sam Houston, Texas.

Lieutenant Fred M. Barney, M.RC., ordered from Fort Myer, Va. to temporary duty at Fort McHenry, Md.

Lieutenant Edmund W. Bayley, M.R.C., granted one month's leave.

Lieutenant R. C. Bayly, M.R.C., ordered to the Army Medical School for instruction.

Passed Assistant Surgeon L. W. Bishop, U.S.N., ordered from the New York Naval Hospital to the Omaha Navy Recruiting Station.

Captain R.M.Blanchard, U.S.A., orderded from Fort Wingate to Whipple Barracks, Arizona, for duty with troops on a 21 days practice march.

Captain Horace D. Bloombergh, U.S.A., married, October 7, 1908, at Atchison, Kansas, Miss Helen Howard.

Assistant Surgeon M. Boland, U.S.N., ordered from the Detroit Naval Recruiting Station to the *Castine*.

Major W. C. Borden, U.S.A., having been found physically incapacitated for active service ordered to his home to wait retirement.

Acting Assistant Surgeon P. E. Bowers, P.H.&M.H.S., granted 11 days extension of sick leave.

Lieutenant Madison M. Bowman, M.R.C., ordered from the Philippines to the United States for station.

Lieutenant Colonel Louis Brechemin, U.S.A., ordered from the New York Medical Supply Depot to the Philippines.

Lieutenant I. W. Brewer, M.R.C., granted 13 days leave from Fort Warren.

Assistant Surgeon E. M. Brown, U.S.N., granted three months sick leave from the Norfolk Naval Hospital.

Assistant Surgeon W. M. Bryan, P.H.&M.H.S., granted 30 days leave.

Lieutenant G. F. Campbell, M.R.C., arrived at San Francisco from the Philippines and ordered to Alcatraz Island, Cal., for duty at the Pacific Branch, U.S. Military Prison.

Lieutenant D. P. Card, M.R.C., ordered to the Army Medical School for instruction.

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Surgeon P. M. Carrington, P.H.&M.H.S., directed to report at the Bureau for special temporary duty; relieved from temporary duty at Washington, and detailed to represent the Service at the Association of Military Surgeons at Atlanta, Ga., October 13-16, 1908.

Major William Fitzhugh Carter, U.S.A., retired upon his own application after thirty years service, July 8, 1908, a step which he has been contemplating for some years.

Assistant Surgeon W. Chambers, U.S.N., ordered from the Buffalo Naval Recruiting Station to the Naval Medical School for instruction.

Acting Assistant Surgeon G. F. Clark, U.S.N., ordered from the *Lancaster* to the Naval Medical School for instruction.

Major J. T. Clarke, U.S.A., granted one month's leave in the United States.

Lieutenant H. C. Coburn, M.R.C., ordered to active duty and instruction at the Army Medical School.

Lieutenant H. L. Coffin, M.R.C., granted four months leave.

Captain C. LeR. Cole, U.S.A., granted ten days leave.

Assistant Surgeon C. F. Cottie, U.S.N., appointed Oct. 3, 1908, and ordered to instruction at the Naval Medical School.

Assistant Surgeon G. B. Crow, U.S.N., ordered from the Norfolk Navy Yard to the Naval Medical School for instruction.

Assistant Surgeon R. Cuthbertson, U.S.N., appointed October 12, 1908.

Lieutenant A. D. Davis,M.R.C., ordered to the Army Medical School for instruction.

Captain W. R. Davis, U.S.A., ordered to accompany troops from Fort Mason to Atascadero, Cal.

Lieutenant G. W. Daywalt, M.R.C., ordered from San Francisco to the Philippines.

Lieutenant W. R. Dear, M.R.C., ordered to the Army Medical School for instruction.

Acting Assistant Surgeon J. M. Delgado, P.H.&M.H.S., granted three months extension of leave without pay.

Passed Assistant Surgeon P. T. Dessez, U.S.N., ordered from the Las Animas Naval Hospital to the *South Dakota*.

Medical Inspector S. H. Dickson, U.S.N., and Mrs. Dickson have taken a house, 1739 Corcoran St., Washington, D. C., for the winter.

Medical Inspector O. H. Diehl, U.S.N., commissioned October 11, 1908.

Assistant Surgeon A. H. Dodge, U.S.N., appointed Oct. 3, 1908, and ordered to instruction at the Naval Medical School.

Lieutenant C. E. Doerr, M.R.C., ordered to the Army Medical School for instruction.

Lieutenant L. R. Dunbar, M.R.C., ordered to the Army Medical School for instruction.

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Major Basil H. Dutcher, Medical Corps, U.S.A., ordered to Plattsburg Barracks, N.Y.

Assistant Surgeon General J. M. Eager, P.H.&M.H.S., ordered to Philadelphia for special temporary duty and returned to the Bureau.

Lieutenant A. H. Eber, M.R.C., ordered from Fort DeSoto, Fla., to temporary duty at Key West Barracks, Florida.

Passed Assistant Surgeon H. G. Ebert, P.H.&M.H.S., ordered from San Francisco to Manila, P. I.

Surgeon S. G. Evans, U.S.N., ordered from the Washington Naval Hospital to the *Pennsylvania.*

Passed Assistant Surgeon W. G. Farwell, U.S.N., ordered from the Marine Recruiting Station to the Philadelphia Naval Hospital.

Passed Assistant Surgeon Wrey G. Farwell, U.S.N., married Miss Virginia Davis Schaefer at Baltimore, Md., October 22, 1908.

Lieutenant J. B. Ferguson, M. R. C., recently appointed from Contract Surgeon, U.S.A., ordered to active duty.

Acting Assistant Surgeon P. A. de Ficaniere, U.S.N., appointed Oct. 3, 1908, and ordered to instruction at the Naval Medical School.

Passed Assistant Surgeon C. N. Fiske, U.S.N., ordered from the Boston Naval Recruiting Station to the Minneapolis Naval Recruiting Station.

Lieutenant Thomas M. Foley, M.R.C., ordered to active duty at Fort Moultrie, S. C.

Captain Clyde S. Ford, U.S.A., ordered from duty in the Philippines to the United States, and granted six months leave with permission to go beyond the sea.

Acting Assistant Surgeon J. P. C. Foster, P.H.&M.H.S., granted 10 days leave from Sept. 23, 1908.

Surgeon G. F. Freeman, U.S.N., commissioned August 2, 1908.

Captain Paul L. Freeman, U.S.A., granted ten days leave.

Lieutenant C. E. Fronk, M.R.C., ordered to the Army Medical School for instruction.

Lieutenant L. C. Garcia, M.R.C., ordered to the Army Medical School for instruction.

Medical Inspector J. E. Gardner, U.S.N., ordered to additional duty at the Boston Naval Recruiting Station and to duty in attendance upon officers of the Navy and Marine Corps residing in Boston not otherwise provided with medical aid.

Medical Inspector J. D. Gatewood, U.S.N., commissioned September 18, 1908.

Lieutenant R. H. Goldwaithe, M.R.C., ordered to the Army Medical School for instruction.

Assistant Surgeon G. D. Hale, U.S.N., ordered from the *Idaho* to the *New Hampshire.*

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Acting Assistant Surgeon T. Harlan, U.S.N., appointed from September 17, 1908, and ordered to the Naval Medical School for instruction.

Dr. Joseph Randolph Harmer, for many years an Acting Assistant Surgeon in the Army and for a considerable time after the resumption of the employment of civil physicians in the service a Contract Surgeon, died April 15, 1908, at the home of his daughter at Opelika, Ala.

Lieutenant D. W. Harmon, M.R.C., ordered to the Army Medical School for instruction.

Captain Jesse R. Harris, Medical Corps, U.S.A., granted twelve days extension of leave.

Captain E. H. Hartnett, U.S.A., ordered from the Philippines to San Francisco.

Passed Assistant Surgeon G. S. Hathaway, U.S.N., commissioned from August 1, 1908.

Colonel Valery Havard, Medical Corps, U.S.A., detailed to represent the Medical Department of the Army at the meeting of the Association of Military Surgeons, at Atlanta, Ga., Oct. 13-16, 1908.

Lieutenant G. D. Heath, Jr., M.R.C., ordered to the Army Medical School for instruction.

Passed Assistant Surgeon V. G. Heiser, P.H.&M.H.S., granted 30 days leave while en route to join station at Manila.

Lieutenant Z. L. Henry, M.R.C., ordered to active duty at Fort Thomas, Ky.

Assistant Surgeon M. E. Higgins, U.S.N., ordered from the *Illinois* to the Naval Hospital, Canacao.

Lieutenant E. C. Hill, M.R.C., ordered to the Army Medical School for instruction.

Colonel John Van R. Hoff, U.S.A., ordered from the Philippines to report at San Francisco.

Passed Assistant Surgeon J. M. Holt, P.H.&M.H.S., ordered to Boise, Idaho, upon special temporary duty.

Acting Assistant Surgeon M. W. Houghton, P.H.&M.H.S., granted nine days leave.

Captain P. W. Huntington, U.S.A., granted one month's extension of leave, and ordered to the Philippines.

Lieutenant T. W. Jackson, M.R.C., granted one month's leave from the Philippines.

Lieutenant C. W. Johnson, M.R.C., ordered from Fort Des Moines, Iowa, to the tournament at Louisville, Kentucky.

Assistant Surgeon L. W. Johnson, U.S.N., appointed from September 17, 1908, and ordered to the Naval Medical School for instruction.

Major Jefferson R. Kean, U.S.A., was in Washington D. C., in attendance upon the Tuberculosis Congress last month, and at the same time appeared before the Promotion Board for examination, and later was

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ordered to represent the Medical Department of the Army at the meeting of the Association of Military Surgeons, at Atlanta, Ga., Oct. 13 to 16, 1908, and then to his station in Havana.

Lieutenant R. A. Kearney, M.R.C., ordered to active duty and instruction at the Army Medical School.

Major F. R. Keefer, U.S.A., ordered from San Francisco to the Presidio of Monterey, thence to Atascadero, Cal.

Lieutenant R. W. Kerr, M.R.C., ordered to the Army Medical School for instruction.

Acting Assistant Surgeon W. M. Kerr, U.S.N., ordered from the Norfolk Naval Hospital to the Naval Medical School for instruction.

Acting Assistant Surgeon W. A. Kimmet, P.H.&M.H.S., granted 60 days leave.

Lieutenant H. A. Knox, M.R.C., ordered to active duty at Fort Michie, N. Y.

Assistant Surgeon F. X. Koltes, U.S.N., ordered from the *Connecticut* to the *Wilmington.*

Lieutenant J. S. Lambie, Jr., U.S.A., ordered from duty with Co. C, H. C., at Washington Barracks to Fort Monroe, Va.

Assistant Surgeon M. E. Lando, U.S.N., ordered to the Buffalo Naval Recruiting Station.

Lieutenant T. J. Leary, M.R.C., ordered to the Army Medical School for instruction.

Lieutenant W. F. Leech, M.R.C., ordered to active duty at Jefferson Barracks, Mo.

Acting Assistant Surgeon F. S. Lewis, P.H.&M.H.S., granted six weeks leave.

Passed Assistant Surgeon J. D. Long, P.H.&M.H.S., assignment to Los Angeles revoked.

Lieutenant L. W. Lord, M.R.C.,ordered to active duty at Fort Riley, Kans.

Lieutenant A. G. Love, U.S.A., ordered from the Philippines to San Francisco.

Surgeon C. H. T. Lowndes, U.S.N., ordered from the *South Dakota* home to await orders.

Major Charles Lynch, Medical Corps, U.S.A., detailed to represent the Medical Department of the Army at the meeting of the Association of Military Surgeons, at Atlanta, Ga., Oct. 13 to 16, 1908.

Captain James I. Mabee, Medical Corps, U.S.A., granted two months extension of leave.

Lieutenant N. L. McDermid, M.R.C., ordered to the Army Medical School for instruction.

Passed Assistant Surgeon W. N. McDonell, U.S.N., ordered from the Minneapolis Naval Recruiting Station to Washington, D.C., to report to

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the Surgeon General of the Navy for temporary duty, and thence to the Naval Academy.

Lieutenant G. H. McLellan, M.R.C., ordered to the Army Medical School for instruction.

Lieutenant J. C. Magee, M.R.C., ordered to the Army Medical School for instruction.

Lieutenant J. E. Maloney, M.R.C., ordered to active duty at Fort Hancock.

Assistant Surgeon W. L. Mann, U.S.N., appointed Oct. 3, 1908, and ordered to instruction at the Naval Medical School.

Acting Assistant Surgeon W. H. Marsh, P.H.&M.H.S., granted 13 days leave to enable him to attend the meeting of the Association of Military Surgeons at Atlanta, Ga., and to pay a visit to Lieutenant Colonel Leonard B. Almy at Norwich, Conn.

Acting Assistant Surgeon C. J. Marsillan, P.H.&M.H.S., granted two months sick leave.

Colonel Louis M. Maus, U.S.A., is enjoying a trip through China and Japan.

Surgeon F. W. Mead, P.H.&M.H.S., granted 27 days leave from Aug. 26, 1908.

Major Edgar A. Mearns, U.S.A., has been found physically disqualified for promotion to Lieutenant Colonel and will be retired with that rank when reached in the course of promotion.

Lieutenant D. Miner, M.R.C., ordered to the Army Medical School for instruction.

Captain W. H. Moncrief, U.S.A., relieved from present duty and ordered to the Philippines.

Major Edward R. Morris, U.S.A., has been found physically disqualified for promotion to Lieutenant Colonel and will be retired with that rank when reached in the course of promotion.

Lieutenant A. Mueller, M.R.C., ordered to the Army Medical School for instruction.

Assistant Surgeon E. H. Mullan, P.H.&M.H.S., ordered from Ellis Island, N.Y., to Montreal, Canada.

Surgeon J. A. Murphy, U.S.N., ordered to the *Franklin*.

Assistant Surgeon D. H. Noble, U.S.N., appointed October 12, 1908.

Acting Assistant Surgeon C. W. Nulty, Jr., P.H.&M.H.S., granted 15 days leave.

Passed Assistant Surgeon J. A. Nydegger, P.H.&M.H.S., granted 22 days leave, and 23 days extension.

Lieutenant S. F. O'Day, M.R.C., ordered to the Army Medical School for instruction.

Major John F. O'Farrel, Mississippi N.G., has been detailed by his state to attend the present session of the Army Medical School.

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Lieutenant A. D. Parce, M.R.C., ordered to the Army Medical School for instruction.

Lieutenant Edwin W. Patterson, M.R.C., ordered from the Philippines to the United States for station.

Lieutenant H. F. Phillips,, M.R.C., ordered to active duty and instruction at the Army Medical School.

Major John L. Phillips, Medical Corps, U.S.A., ordered from examination at Washington, D. C., to return to his station.

Captain H. F. Pipes, U.S.A., ordered from duty with Co. C, H. C., to the Washington General Hospital.

Assistant Surgeon J. P. Pollard, U.S.N., appointed Oct. 3, 1908, and ordered to instruction at the Naval Medical School.

Passed Assistant Surgeon F. E. Porter, U.S.N., ordered from the Washington Navy Yard to the Detroit Naval Recruiting Station.

Captain H. S. Purnell, U.S.A., granted two months leave about November 1st.

Captain C. A. Ragan, U.S.A., ordered to return to Fort Monroe from treatment at Washington, D. C.

Major I. W. Rand, U.S.A., ordered from the Philippines to report from San Francisco.

Acting Assistant Surgeon S. A. Ransom, P.H.&M.H.S., appointed for duty at Shanghai, China.

Captain William W. Reno, U.S.A., married Miss Ruth Steere, daughter of Captain and Mrs. Henry Steere, in Washington, D. C., on October 9, 1908.

Acting Assistant Surgeon J. R. Ridlon, P.H.&M.H.S., appointed for duty at Stapleton, N. Y.

Assistant Surgeon M. E. Rose, U.S.N., ordered from the Omaha Naval Recruiting Station to the *Hist.*

Passed Assistant Surgeon T. W. Salmon, P.H.&M.H.S., ordered to the revenue cutter *Gresham* for temporary duty, and to Stapleton, N. Y. for temporary duty.

Passed Assistant Surgeon J. W. Schereschewsky, P.H.&M.H.S., ordered to the Bureau upon special temporary duty.

Lieutenant Anton R. Schier, M.R.C., honorably discharged from the service of the United States.

Assistant Surgeon L. N. Schmidt, U.S.N., ordered from the Annapolis Naval Hospital to the Naval Medical School for instruction.

Captain G. H. Scott, U.S.A.,granted an extension of leave to include October 31st, and ordered from Fort Logan to the Philippines at expiration of leave.

Lieutenant J. M. Shepherd, M.R.C., granted one month's extension of leave.

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Lieutenant W. S. Shields, M.R.C., ordered to the Army Medical School for instruction.

Surgeon E. M. Shipp, U.S.N., ordered from the *Pennsylvania* home to wait orders.

Assistant Surgeon L. P. Shippen, U.S.N., appointed from September 17, 1908, and ordered to the Naval Medical School for instruction.

Assistant Surgeon J. A. B. Sinclair, U.S.N., appointed October 12, 1908.

Lieutenant E. F. Slater, M.R.C., ordered from Madison Barracks, N.Y., to temporary duty at Plattsburg Barracks, N. Y.

Lieutenant J. T. Slater, M.R.C., granted ten days leave and ordered from Fort William Henry Harrison, Montana, to his home, Cambridge, Mass., to await orders.

Assistant Surgeon C. W. Smith, U.S.N., ordered from the Portsmouth Naval Hospital to the Naval Medical School for instruction.

Passed Assistant Surgeon F. C. Smith, P.H.&M.H.S., granted a month's leave, and 17 days extension.

Assistant Surgeon H. L. Smith, U.S.N., ordered from the *Missouri* to the *Villalobos*.

Lieutenant W. H. Smith, M.R.C., ordered to the Army Medical School for instruction.

Lieutenant C. G. Snow, M.R.C., ordered to the Army Medical School for instruction.

Captain Craig R. Snyder, U.S.A., granted one month's leave.

Lieutenant H. M. Snyder, U.S.A., relieved from present duty and ordered to the Philippines.

Surgeon J. J. Snyder, U.S.N., ordered from the *Franklin* to the Philadelphia Marine Recruiting Station.

Assistant Surgeon A. C. Stanley, U.S.N., ordered from the Naval Medical School Hospital to the Naval Medical School for instruction.

Major A. N. Stark, U.S.A., granted a month's leave from Dec. 15, with permission to apply for 15 days extension.

Lieutenant M. C. Stayer, M.R.C., ordered to the Army Medical School for instruction.

Captain C. J. Stedman, U.S.A., ordered to return to Fort Stevens from American Lake, Wash.

Major William Stephenson, Medical Corps, U.S.A., ordered from examination at Washington, D.C., to return to his station.

Passed Assistant Surgeon A. M. Stimson, P.H.&M.H.S., unexpired portion of leave revoked, and ordered to special temporary duty at Santa Ana and points in vicinity of Los Angeles.

Surgeon G. W. Stoner, P.H.&M.H.S., granted 15 days leave.

Major Paul F. Straub, U.S.A., who has been the official delegate of the

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United States to the Esperanto Congress, arrived in New York on his return journey on Oct. 1st.

Lieutenant Frank Suggs, M.R.C., granted one month's leave.

Brigadier General John E. Summers, U.S.A., retired, formerly colonel, Medical Department, died in Atlantic City, October 1, 1908.

Assistant Surgeon D. G. Sutton, U.S.N., ordered from the *Franklin* to the Naval Medical School for instruction.

Colonel George H. Torney, U.S.A., has been announced by the President as the successor to Brigadier General Robert M. O'Reilly, U.S.A., as Surgeon General of the Army.

Assistant Surgeon A. J. Toulon, U.S.N., ordered from the Boston Naval Hospital to the Naval Medical School for instruction.

Lieutenant C. A. Treuholtz, M.R.C., recently appointed from Contract Surgeon, U.S.A., ordered to active duty, and to the Army Medical School for instruction.

Major Charles S. Turnbull, N.G.P., announces the engagement of his daughter Edith Somers Turnbull to Paymaster Magill R. Goldborough, U.S.N. Miss Turnbull is the third of Dr. Turnbull's daughters to marry in the service. Paymaster Goldsborough is the son of Pay Director and Mrs. Worthington Goldsborough, of Cambridge, Md. He is stationed at League Island.

Assistant Surgeon H. W. B. Turner, U.S.N., ordered from the Naval Medical School Hospital to the Naval Medical School for instruction.

Lieutenant A. D. Tuttle, M.R.C., ordered to the Army Medical School for instruction.

Lieutenant G. T. Tyler, M.R.C., ordered from Fort Porter, N. Y., to Fort Jay, N. Y., for temporary duty.

Captain James W. Van Dusen, U.S.A., married Miss Bessie Evelyn Haines, at Elyria, Ohio, October 20, 1908.

Captain G. M. Van Poole, U.S.A., granted four months leave when his services can be spared.

Captain E. B. Vedder, U.S.A., arrived at Fort Walla Walla from four months leave.

Lieutenant J. B. H. Waring, M.R.C., ordered to the Army Medical School for instruction.

Captain F. W. Weed, U.S.A., granted one month's leave from Plattsburg Barracks.

Colonel E.A Weimer, formerly Surgeon General of South Dakota, moved from Pekin, Ill., to Peoria, Ill.

Lieutenant F. M. Wells, M.R.C., ordered from Fort Robinson, Nebraska, to duty with U. S. troops at St. Joseph, Missouri.

Surgeon C. P. Wertenbaker, P.H.&M.H.S., detailed to represent the Service at the Association of Military Surgeons at Atlanta, Ga., October 13-16, 1908.

Surgeon J. H. White, P.H.&M.H.S., detailed to represent the Service at

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the meeting of the Southern Medical Association at Atlanta, Ga., Nov. 10-12, 1908.

Passed Assistant Surgeon M. J. White, P.H.&M.H.S., detailed to represent the Service at the Association of Military Surgeons at Atlanta, Ga., October 13-16, 1908.

Dr. J. H. Whitely, U.S.A., relieved from duty at Fort De Soto and ordered, upon expiration of present leave, to his home in Chicago, Ill., for annulment of contract.

Assistant Surgeon G. B. Whitmore, U.S.N., appointed October 12, 1908.

Lieutenant J. A. Wilson, M.R.C., ordered to the Army Medical School for instruction.

Lieutenant F. S. Wright, M.R.C., ordered to the Army Medical School for instruction.

Lieutenant Colonel M. C. Wyeth, U.S.A., having been found physically disqualified for duties of that grade in the Medical Corps, by reason of disability incident to the service, his retirement from active service as a Lieutenant Colonel is announced to date from May 1, 1908.

Acting Assistant Surgeon J. G. Ziegler, U.S.N., ordered from the Newport Naval Hospital to the Naval Medical School for instruction.

THE ARMY MEDICAL SCHOOL.—The Army Medical School opened on October 1, with 34 officers in attendance whose names appear in that connection in alphabetical order in this department of THE MILITARY SURGEON. This is the largest class ever matriculated.

MILITARY MEDICAL PEDESTRIANS.—Colonel Valery Havard, Major Charles F. Mason, and Major Charles Lynch, on duty in the Surgeon General's office, War Department, and Major William D. Crosby on duty at the Soldier's Home completed the fifty mile walking test recently. Their route was over the Rockville pike.

THE FOOT OF THE SOLDIER.—Major Edward L. Munson, U.S.Army, has submitted to the War Department a report on the care of the foot of the soldier. He entertains the opinion that there is such a thing as a military foot which, as a distinction, exists by reason of much marching in the case of the infantrymen. He suggests there may also be a difference in the foot of the men of the artillery and of the cavalry on account of the character of the duties of those respective branches of the Army. It is this report and the suggestions which have been made by Major Munson which led the quartermaster general to make the practical trial of the new russet shoe and the black dress shoe, for which a large contract has been recently made. Sets of the shoes of both types have been sent to Fort Sheridan and will be tried by he enlisted men at that post under the observation of a board of officers and the civilian expert in shoes employed by the quartermaster general's office. Major Munson has given considerable attention to the question of foot apparel as he has to other features which promote military sanitation and personal hygiene. The new shoes are of a pattern which take advantage of the criticisms that have hitherto been made of the shoes issued to the soldier and it is expected that the new shoes will be as

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nearly perfect as it is possible to have anything in leather. Major Munson has also called attention to the need of having shoes which fit issued to the enlisted men and special care will be exercised hereafter in attending to this detail, the observance of which is bound to be not only a contribution to individual comfort, which is a consideration by no means to be despised, but will also add to the efficiency of troops in the field.

THE ARMY AS A SANITARY CORPS.—Prof. C. Otto Schoenrich, of the Baltimore City College, has just returned from Cuba with nothing but praise for the system of sanitation introduced by the United States Army. The professor is a son of Jugde Otto Schoenrich, secretary of the provisional government in Cuba, and a member of the Cuban Law Commission. "Havana is entirely free from mosquitoes and flies," said the returned educator to a reporter of the *Baltimore American.* "This condition is brought about by the American Army system of sanitation, the most perfect in the world. Rain pools are rendered harmless by the pouring of oil over them. Then there are men constantly engaged in cleaning the streets. It is the cleanest city imaginable. Garbage is collected in Havana until ten o'clock at night. These endeavors to avoid filth have resulted in clearing the city of almost allinsects. I could sit in my room in the hotel at night, with a bright light burning, and, although there are no glass windows in Havana and everything is open, not an insect of any kind would be attracted. This was so in spite of the fact that the hotel faces a grove of palm trees.

"If any one had predicted ten years ago that Havana would be an insectless, feverless, dirtless city in less than a decade he would have been put down as non compos mentis. Without any wish to draw invidious distinctions, it may be asked, in view of the insect plagues in American cities like New York, how long it would have taken a purely civil, politically administered municipal government to do what the Army medical men have so quickly accomplished. In northern cities in the United States everything in the climate works to make insect extermination easy; still year after year the pests continue to endanger the public health by transmitting disease. As a result of Army administration Havana has become an example to the whole civilized world as to what can be achieved by scientific sanitation in the face of every drawback of climate and native indifference. When one comes to calculate the great addition made to popular knowledge on the yellow fever question by the victories won by our Army doctors in the disease-breeding localities of Havana, it may not seem idle to assert that these triumphs in wresting the scepter from one of the deadliest of diseases were worth far more than it cost in lives and money to fight the Cuban war. Havana afforded the first instance when trained medical men could begin in the seat, in the very cradle, of a scourge, a systematic plan to master it, and could proceed unhampered by civilian embarrassment to carry their scheme to complete fruition. Army administration is producing a similar condition of things in the Panama Isthmus, and to lesser extent, because military control is less complete, in the Philippines."

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Current Literature.

SURGICAL THERAPEUTICS.*

ONE of the most useful and meaty books that has come to the editorial desk is the little work on non-operative surgery which Dr. Lanphear has just given to the profession. It is useful because it contains so many facts that most practitioners are obliged to learn by sad experience and for the teaching of which many patients have to suffer. A careful reading of this book persuades one to anticipate with great interest the appearance of the more complete treatise on surgery, which is one of the surgical suggestions thrown out by the author, one which will be greeted with much interest by the profession.

OPHTHALMIC SURGERY.†

THIS work is an account of the surgical procedures in vogue at the Clinic of Professor Fuchs in Vienna, together with the original views and practices of the author who has been for many years first assistant in the Vienna Clinic. It is a faithful picture of German methods and practices and well worthy a hearty reception at the hands of the American ophthalmological profession.

THE EXPERIMENTAL PROPHYLAXIS OF SYPHILIS.‡

THIS little book contains an account of the work of Metchnikoff and Maisonneuve upon this most important subject, idiomatically translated by Dr. Verteuil.

*Surgical Therapeutics.—By EMORY LANPHEAR, M.D. 8vo; pp. 396. Chicago, The Clinic Publishing Co., 1907.

†Ophthalmic Surgery. By Dr. JOSEF MELLER. 8vo; pp.262, with 118 illustrations. Philadelphia, P. Blakiston's Son & Co., 1908. Cloth $3.00 net.

‡The Experimental Prophylaxis of Syphilis. By Dr. PAUL MAISONNEUVE. Translated from the French by Dr. FERNAND L. DE VERTEUIL. 12mo; pp. 102. New York, William Wood & Co., 1908.

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THE MILITARY SURGEON

Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS EXPRESSED IN THEIR CONTRIBUTIONS.

THE ORIGIN AND CONDITION OF THE PEOPLES WHO MAKE UP THE BULK OF OUR IMMIGRANTS AT THE PRESENT TIME AND THE PROBABLE EFFECT OF THEIR ABSORPTION UPON OUR POPULATION.

By MANLY H. SIMONS, M. D.,
MEDICAL DIRECTOR IN THE UNITED STATES NAVY.

THIS subject is too long and important to be treated fully in the time allotted, so I shall not cite authorities or go into statistics, but trust that my statements can be verified by anyone who desires to do so.

My aim in this paper is to assist in the agitation of a subject which concerns us nearly as Americans, as medical men and as military surgeons, for only by medical men can these matters be properly considered in their total effect upon the complex human organism.

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Of the theories which are put forward to account for the origin of man the most plausible is that there was a gradual evolution from a simian stem of which the chimpanzee, orang-outan and gorilla are retrograde variants and the monkey-like man, Anthropithecus erectus, of which Dr. DuBois found a skull and long-bone in Java, is an example of the ascending scale which has eventuated in the military surgeon who appears in session today.

If the average capacity of the human skull be taken as 1,500 c.c. that of the pliocene man, will be about 1,250 c.c. of the Java skull 1,000 c.c. and those of the above named monkeys 350 c.c. to 500 c.c. It is quite generally accepted that the early anthropoids developed into early man in a continent in the Indian ocean, Lemuria, so-called, of which the remains are the islands scattered through those waters. The continent was connected with Africa and Asia and the anthropoid apes and ape-like men wandered to both continents and remains of these early men are found in Java and Burma, in the Pliocene period, the last stage of the Tertiary period of geologists. It is impossible to give, except approximately, the number of years that man has been wandering upon the earth as a reasoning and thinking being. The evidence accepted appears to depend very much upon whether the theorist adheres to the ordinary interpretation of the account of creation given in Genesis or to the interpretation by geologists and paleontologists of that other book of God written in the stratifications of the earth and illustrated by the remains of God's creatures buried therein, but it now seems most probable that man lived in the Pliocene period and that he had been developed to such an extent as to make rude stone weapons and ornaments, and these, with his bones, have been found in the strata of this period. In the Pleistocene, the first stage of the Quartenary, there is very positive evidence of his presence in Europe, and Asia, in caves in Brazil, and, as claimed by Dr. Abbott, in glacial deposits in New Jersey. It is probable that these evidences point to a period of over a million years of development as man. When the Ice age began in the Pleistocene, the ice advanced, then retreated and after many thousand years advanced again,

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and man evidently advanced and retreated with the ice-cap. When you consider the thickness of the deposits, the changes in level which they imply, the changes in the animal and vegetable world as pictured in the earth, you must allow for immense periods of time, especially as the evidence shows that the ordinary leisurely processes of natural law have been followed; the processes were not hastened by general cataclysms. Great periods also must have elapsed to permit of such world-wide wanderings of rude men who were impelled only by the desire of food and of a moderate degree of warmth. No doubt local disturbances such as earthquakes, volcanic eruptions, drouths and floods and the consequent scarcity of his usual food drove man from one section to another and these migrations and variations in environment increased his knowledge, his comprehension and his adaptability. There are geological evidences to show that his wanderings were made possible by a landbridge by way of England and the Faroe islands to Greenland and America from Europe, and the presence of the fossil trunks of redwood trees show that a climate not colder than the present one of California then prevailed in Greenland. The Esquimaux are supposed to have come from France to their present habitat by this landbridge. They are the aboriginal French; they have lost much of the polish and all remembrance of "Gay Paree," but they prove that energy, adaptability and bravery characterized the early as well as the later Frenchman. Land once joined America and Asia across Bering Sea, and the island of Yesso shows evidence in its flora and fauna that it was joined to this continent by way of an early Aleutian chain. It is however quite certain that, after the arrival of paleolithic man on this continent, land communication was cut off by subsidence and there were no subsequent invasions of any moment. The semi-civilization found here by the whites therefore, was indigenous, not the result of transfer of any old world culture, and the color, mental qualities, physique, advancement etc., showed the inherent capacity for improvement of these first migrants from the primal center. It must be remembered that when they left Lemuria they were probably still ape-like men and that they prove that the tendency to higher

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development had already shaped itself to proceed along nearly similar lines in all branches from the original stem. There is no other section of the world in which it is probable that the descendants of paleolithic man can be found unmixed with other types which had themselves been modified by long residence in the same environment and mixture with invading varieties as was the case in the old world.

These first wanderers from the original habitat are known as paleolithic men, from the rude and rough character of their stone weapons and tools; the next arrivals are called neolithic and are characterized by more highly finished utensils and other evidences of greater skill and advancement. The land of origin was large and probably diversified by mountains, uplands and lowlands so that the inhabitants were exposed to varying climatic and food conditions. These may account, in part at least, for the differences in the races of man, and these differences, physical and mental, together with the tendencies to advancement, retardation and degradation may have been impressed upon the early forms before the actual evolvement of man, in other words there may have been varieties of the anthropoids. It seems evident also that the progenitors of the white race left the original habitat at or near its western end, the mongols near its eastern and that the blacks were more general, but did not wander so far north.

I have adopted for convenience the classification of Keene which divides man into four races, Homo caucasicus, Homo americanus, Homo mongolicus, and Homo aethiopicus. These are supposed virtually to have proceeded from the same anthropoid stem and their differences are supposed to have developed or become accentuated since. The Caucasic race includes the Hamites or Berbers, Semites, Persians, Slavs, Germans, Anglo-Saxons, in other words the white races which vary from florid to black in India, brown in Polynesia, the hairy and brown Ainu, etc., and the other races are shown by the name.

The early men then wandered from their original habitat over the world: Some settled in North Africa and there developed into white or light men; the Hamites, the type of these is sup-

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posed to be the Berber of the present time. North Africa including the Sahara, Soudan and Egypt, was then a pleasant well-watered land several hundred feet higher than now, three land-bridges across the Mediterranean, one to Gibraltar, one to Italy and one to Greece connected it with Europe. In Egypt the Hamite developed a high degree of civilization and in its soil are found the evidences of this from its beginnings in the rude flints of paleolithic man, in the more polished ones of neolithic man and so on to the pottery, bronze and iron of later ages. From northern Africa the Hamites spread over the landbridges and around the Mediterranean shores and were called Iberians in Spain, Ligurians in Italy, Palasgians in Greece; they invaded northern Europe, and passed around eastward into Persia; those that settled in the Steppes on both sides of the Urals developed into the tribes from which have descended our present Germans, Anglo-Saxon, and other Europeans. These blond tribes pressed west, mingling with the darker peoples and eventually producing the present types. The Semitic family may have developed from the Hamitic, or it may have come from migrants direct to Arabia from Lemuria, but it eventually mingled with the Hamites and negroes producing the Abyssinians and many other black tribes which have formed kingdoms in Africa from early days down to quite late times, and under the stimulus of Mohammedanism, it over-ran in later times a large portion of the world.

With the American aborigines we have little to do; they are too few to influence our development.

The Mongol race varies from yellow and brown to white in color and at one time apparently was a leader in civilization as in ancient Babylonia which was Mongol. This race pressed west in the height of its power but the Turks and the Huns have mingled so with western peoples that only the language remains to show the Mongol origin.

The negro was left as the aborigine on the islands of the Indian Ocean, and spread into Africa, India, Australia and many islands of the Pacific, as Papuans, Negritos, etc. In Africa the now extinct Strandloopers, the fading Bushmen and Pigmies are probably remnants of the early forms.

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Three of these races, the white, the yellow and the black, show well-marked physical differences in their extreme types, as in the proportions of the limbs, the capacity of the skull, the third eyelid of the Mongol, the tendency to early ossification of the skull in the black, the shape of the pelvis and long bones, differences in the glottis, etc. It is pretty evident however that no one or two characters can be depended upon as a means of differentiation, there has been so much admixture that one shades into the other.

If the field be scanned broadly it will be seen that with the tendency to improvement, there exists also in man a tendency to retardation, degradation and extinction. The earth is full of the monuments of mighty nations who made the world of their day bow to the force of their intellect and the might of their arms, and of them now live, among the remains of their glory, a few rude barbarians or half-civilized tribes. Perhaps of all the mighty kingdoms of the past, only Egypt retains a large number of her people, and the Fellaheen certainly have retrograded. It is stated that the skulls of the present day Egyptians are smaller than those found in the tombs. The Greeks and the Romans have held the stage and have retired, their numbers have diminished, their force has decayed. The French and the Spanish have lost their aggressiveness and the former are said to be losing in population from lack of fertility. The list could be extended for several pages. Now the German and Anglo-Saxon in the west and the Mongoloid Japanese in the East are showing the greatest progress and aggressiveness. The negroes, it is said, in Africa tend to degradation of type unless the proportion of foreign blood is constantly renewed and the pure blacks, the aborigines, are fast disappearing. The South Italian, the type of the ancient Ligurian, is the shortest of the white people and is apparently retrograding mentally and physically. Travelers' descriptions of the people of the mountain regions of Poland, of Austro-Hungary, Italy and other back countries of Europe read like tales of the early days when tribes and clans held the hills and valleys and warred upon each other, and such of these people as come to this country show by their poorly developed reasoning

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faculties, their habits of personal revenge, their treatment of women and children and their anarchistic and lawless tendencies that they have retrograded to the semi-civilized stage. Of the great Semitic family only the Jews concern us particularly. These people have, in theory, but only partly in fact, refrained from intermarriage with alien peoples but the type has been preserved in noticeable distinctness since the destruction of their power as a nation over 1800 years ago. Since that time they have lived in groups or communities in all of the cities of the western world. They have been confined to limited and unsanitary sections which have ultimately become greatly crowded. The poorer classes of Jews are very unsanitary; they work and live in dirty and badly ventilated quarters. Though special virtue is claimed for the Jewish method of killing the animals they use for food this is offset by the dirtiness of the shops in which the meat is sold. The Jew is very tuberculous, he has been so for so long, that he exhibits great tolerance of the effects of the disease; he is also prone to pneumonia, bronchitis, etc. The upper class Jew is healthier, his surroundings are the same as other wealthy individuals, but as a type Jews are beginning to show mental and physical degradation, as evidenced by the great variability of development, great brilliancy, idiocy, moral perversity, epilepsy, physical deformity, anarchistic and lawless tendencies. The percentage of rejection at the Philadelphia naval recruiting office among young Jews and other foreigners and their descendants of the first generation is so great that barely one in ten is accepted. The Jewish quarter in New York is said to be the most thickly settled section in the world and the death rate is enormous. It is from these quarters that our hospitals, sanatoria, epileptic wards and colonies are filled. From these densely packed districts come the great proportion of the distorted forms and minds, the beggars, tramps, burglars and other perverts who make life burdensome and fill our prisons with criminals, our asylums with insane,

The causes which lead to degradation, retardation and extinction may be briefly summarized: They may be inherent, hereditary, or extraneous, belonging to the environment, acquired,

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or the result of circumstances over which the nation or individual has no control. The line between these is not always distinctly drawn. It seems evident by the consideration of nature generally that there is an inherent tendency to degradation and extinction which favoring environment may cause to become predominant. A type reaches the height of its perfection, rests for a time and then slowly fades. Intermarriage or crossing between members of the same family, tribe or type, tends to accentuate and increase undesirable physical, nervous and mental characteristics. The race qualities are hereditary and, as seen in the negro, they sometimes tend to extinction of the race or type by limiting their adaptability especially where they are reenforced by marriage within the variety. There are what Prof. Raymond calls "family diseases" or abnormal types which tend to early death or sterility. There is not time to dwell on these points. Other causes, producing poverty and extinction, are barrenness of the soil from elevation, subsidence, deforestation and washing, flooding, drouth, incursion of sand, overcropping, war, pestilence and famine, the presence of malaria, sleeping sickness, uncinariasis, etc. The effect of general and long-continued use of alcohol is said to be sterility; maladministration, luxury, and vice promote sterility and decay. The wars of Alexander and the Caesars killed off the young men and exhausted their people. The list might be extended for several pages. Tuberculosis has now become a strong factor. One of the most potent of the peoples who have entered into the composition of the American type is the Irish, and of late they have begun to develop a strong tendency to tuberculosis; one cause of this may be that they are deserting the manual labor and out-of-door life of former times and flocking to the city to crowded quarters and in-door occupations.

It is evident that environment under which may be grouped all extraneous circumstances, or things affecting us from without, is stronger for our hurt or our betterment than heredity. Immunity to disease is not transmitted but adaptation to an environment is, though it acts very slowly and many perish before it is perfected. It would seem that long dwelling in a locality and

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in-breeding tend to produce a variety almost as well marked as one of the four races, and there is a disposition thus to explain the numerous well-marked varieties of the different races.

Twenty-five or thirty thousand years ago villages existed built on piles or rafts in the Swiss lakes and their state and the advance they made toward civilization are shown by the relics obtained. These were a roundheaded people, the Homo Alpinus. There were also longheaded people, the Homo Mediterranensis and Homo Europus, but all three came from the longheaded Hamites, the Berbers of today. The range of color of the whites is through all shades from white to black. Each shade, as a rule though, is found within certain latitudes showing that climate and environment had a great deal to do with its formation and perpetuation, but other factors such as sexual and natural selection must also be mentioned. It is claimed that the blond color and the longhead (dolichocephalism), tend to disappear and be replaced by a medium color, neither light nor dark, and the roundhead (brachycephalism).

From causes now unknown but of which we can imagine many plausible, in ancient times there were innumerable petty tribes and each one had its dialect, or its language. The world was then a panorama of shifting tribes and peoples. Impelled by many motives one horde invaded the territory of another and reduced it to slavery or was itself extinguished. Sometimes a whole people was extinguished as when Moses ordered the killing of certain tribes; under these circumstances there was a great confusion of dialects and types. It is said that a new language is rarely or never evolved by the mixture of different tongues, but that one side will drop its own and adopt the language of the other. Thus the Teutonic tribes which occupied France, Spain and part of Italy adopted Latin, and the Norsemen adopted the French of the day and afterwards those who came to England dropped it and adopted the English. The Aryan tongue was taken by many peoples and the people who evolved it can not now be found. We have numerous examples in our own country and in Spanish America to the same effect. Though the language may be unaffected the physique and mental qual-

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ities are decidedly modified. With this aspect we are also familiar.

The cross between races, that is, the primary divisions of Homo sapiens, is not favorable to longevity or to desirable mental qualities; thus it is an axiom that the cross between the black and the white, the white and the yellow, the yellow and the black, the black and the red inherits the bad qualities of both sides and few of the good; of course this is not true to such an extent, but it is true that the vitality of the cross is generally less than that of either parent, and the susceptibility to disease seems to be increased. It is as if a new form were introduced and had to start afresh to adapt itself to strange environment and new diseases. Now it is my opinion that this will be found to apply strongly, though perhaps to a less extent than between the races, to the crosses between well-marked varieties.

In Europe the varieties are found to be more closely connected and to have greater resemblance along certain lines from East to West; the lighter types along northerly lines, medium along a central, dark along a southern. We find the same to a less extent here. The New Englander goes West and is found in greater numbers in about the latitude of New England; Swedes and Norwegians are found more commonly in the Northern part of the country. This, of course, is being rapidly changed and overcome by the pressure of commerce, but in ancient times, when means of travel were poor, the condition was marked and thus strongly marked varieties, with almost the weight of a race, were made.

We face the problem of uniting these varieties as they gather here into an American type which shall continue our system of Government, develop the energy and force to perfect and defend it and insure for our people the greatest amount of liberty and happiness.

To do this successfully we should first insure that those coming in are desirable physically and mentally, secondly that their habits, methods of thought and state of civilization are such that they will readily assimilate with us.

Though there is no danger of the adoption of any other

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than the English language, there is danger of our losing the hitherto distinguishing physical and mental characteristics which, we pride ourselves, enabled our forefathers to conquer this country and found the Republic, to fight a great civil war over principles and ideals dear to both sides, and, when the matter was settled, to go to work in amity side by side for the public good; for the daily tale of the happenings in our great land seems to show that we are losing the self-restraint, the broad sense of justice and obedience to law, the mental poise and depth, the great moral force which distinguished our ancestors and which would enable us to face danger and defeat calmly and recover quickly. We boast loudly of our strength, our wealth and our bravery, one day, and the next we are in a hysteria of fear over the shadow of a danger; mob violence, dynamiting, defiance of authority, murder, robbery, commercial dishonor and disregard of the obligations of public and private trust occupy too large portions of the daily papers to enable us to make claim without question to a high and ever advancing plane of moral and intellectual development. It is noticeable in the City of New York and probably in other large cities, that the preponderance of the people met on the streets are of a new type, which is without marked characteristics of the Anglo-Saxon, and, if an English dialect did not appear to be the common language, it would seem to be a foreign community. New York is a most prominent example of the tendency of foreigners to flock to the cities, to form communities in which their own customs and language are practiced and outside of which their religion and their prejudices too often forbid them to marry.

A survey of the history of nations and peoples proves to my mind that a mixture of varieties of a race, not of races, is necessary for the preservation and stimulation of the mental and physical qualities which insure the steady advancement of a people.

As before stated crosses between well marked varieties are specially susceptible to disease and though there may be increased mental capacity, there are also likely to be irritability, instability and lack of moral force. This is not entirely a misfor-

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tune, for receptivity, imitation, a capacity for training and proper moulding of character are greater and ready for the teacher. It is therefore necessary that a proper environment and system of instruction be provided for them. Too much emphasis can not be laid upon instruction in general and personal sanitation and in a high degree of morality, self-restraint and high thinking. It is a pity that the legal assumption of the duties and responsibilities of manhood are not now marked by some such ceremonies as those practiced by the candidates for knighthood in olden times, or for admission to the warrior class among our Indians. The fasting, watching, praying and considering of the lives of illustrious persons were especially for the fostering of the moral forces, self-restraint, tenacity of purpose, devotion to a high ideal of conduct, etc., all qualities characteristic of the best type of citizen.

As the white race is all in one division and has the same general conformation and capacity for advancement, there is every reason that the varieties should blend to form a uniform type of high order, but to insure this the mentally and morally defective and perverted, and the physically defective, those who are liable to transmit disease, a lower vital capacity and resistance, should not be permitted to marry and should be placed under careful supervision and training. Man is said to be the sum of his ancestors, and this is true to a certain extent, as in racial characteristics, temperament, etc., but the man is also the product of his environment in so far as his relation to the community is to a very great extent concerned; his business qualities, his probity, his moral standing, his honor, are to a very great extent, or almost entirely due to his bringing up, his moral training. A man may be naturally brave, but he can not be relied upon as a soldier until he has been properly trained, and it has been said that even cowards can be given the courage to make good soldiers by training physically and morally, and this is likely true. We all know how much the course of any disease can be affected by the mental condition of the patient.

The admission of immigrants to the overcrowded tenement districts is a danger to themselves and others. They should be

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diverted to the country, or to districts which are sanitarily fitted to receive them. Many of them are non-producers by which is meant that they do not add to the products of the country; they are parasitic. In the crowded tenements flourish as in a hot-bed the disease and vices, which, aided by the unsanitary environment, lower the vital powers and pervert the moral forces. The immigrant, fresh from the small villages and farms of his own land, will not long remain healthy in such surroundings. He falls an easy prey to tuberculosis and diseases of the digestive and respiratory tracts, and contagious diseases generally. There is evidence to prove that intoxication, or it may be better to say, saturation, of the paternal organism with poison will produce a vitiated progeny. Then aside from the effect of disease, an impaired vitality in the parent, upon the offspring, there is the effect upon the offspring itself, of unhealthful surroundings. Healthy bodies and minds can not be expected from such surroundings, but a greatly increased number of those with unstable nervous systems, perverted morals and an impaired nutrition. The more the matter is studied the more convincing becomes the evidence that environment is greater than heredity in determining the health of the offspring; therefore sanitary measures must be enforced rigidly and generally. It must not be forgotten that it is not sufficient to provide measures but that they must be enforced, for the immigrant is generally entirely ignorant of the necessity. The mentally and physically diseased must be cared for separately, the perverted and vicious confined and given proper training.

In Holy Writ it is doubted that man can, by taking thought, add to his stature but it is physiologically certain that man can by proper thought and training add to the mental, moral and physical stature of his descendants and raise to himself a heritage that will be a glory to his country and to his name.

Mens sana in corpore sano is a proper ideal. It is better that we should carry this before us than that we should strive for a huge population, a blind unthinking mass ever ready to follow a specious leader, a mob ferocious and cruel at one moment, cowardly and hysterical at another. It should be remem-

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bered that mental and physical training must be harmonious to be effective; that is that one part must not be developed at the expense of the other. A sound mind in a sound body and the whole directed by a thoroughly cultivated moral nature will give the ideal citizen. Training must be practical and interesting so as to fit the student for an avocation as well as to give him a knowledge of military drill and of the benefit of the bearing and prompt obedience of a soldier, and it must show the general relation of his avocation and of his actions to the welfare of the community at large. The result of his omissions and commissions upon himself, his descendants and others must be accentuated so that he may not act in ignorance.

In all this work the medical man is vitally interested, in fact it can not be carried out, its principles can not even be laid down, without his broad knowledge of physiology and sanitation and of the nature of man. The rules should not be so rigid as to be irksome, nor so lax as as to be useless; the specialist is apt to lay too much stress upon a part whereas success depends upon the cultivation of the whole. The aim should be to inculcate a sound elementary knowledge, but the application and enforcement in a community should be placed in the hands of those who have been trained for it.

To the military surgeon the subject is interesting and vital, for he will have to deal with all types of men in camp and field and his attention has been more closely drawn to the ever increasing number of defectives who under the stress of active service fall from the ranks either as sick or as deserters and to the ever increasing difficulty of getting recruits who conform to the physical requirements. It is especially difficult to find men who are fitted for the Navy; only the strongest and healthiest will do. In the old days when the old sailor lived practically in the open air the life was a healthy one; now he lives in a steel fortress artificially lighted and ventilated and much overheated; it is overcrowded also and the ventilation is not so good but that the compartments are often surcharged with the emanations from the lungs of the men. It is then no wonder that tuberculosis and other infectious diseases are common in the Navy now. I con-

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sider the crime of desertion to be due principally to two causes; first,—a low or perverted mental development which makes the person unable to appreciate the enormity of the offense; second, an undeveloped or perverted moral sense which equally prevents the realization of the enormity of the offense, but is susceptible of cultivation by training to the normal healthy standard. Those cases in which men are forced to desert by the other men of the company generally come under the second class, for their unpopularity is most commonly due to moral obliquity. The proportion of deserters therefore is an index of the mental and moral condition of a people which can not be neglected in any calculation.

It must not be forgotten that, by neglect of proper sanitary rules and of the laws of nature, we have made sewers of many of our streams and rivers of which the waters can not be drank without great risk, and have materially lessened the productiveness of our land, so for our own welfare the work of sanitation and of restoring the fertility of our soil must be begun soon and done thoroughly.

In our efforts to exterminate tuberculosis, it must not be forgotten that we should take into consideration all preventable diseases and everything which tends to depress vitality. In other words the means of prevention must, to be complete, cover the broad field so faintly indicated in this paper; many particular points will suggest themselves to the scientific observer, in this connection. Nothing radical should be undertaken without the most thorough discussion and consideration. Too often has the welfare of a people been affected by a disturbance of the balance of nature from the hasty action of some enthusiast who has seen only one side of a question. We must not sheer so violently from the shoal on one hand as to run into the rocks on the other.

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A DIAGRAM OF THE MEDICAL ORGANIZATION, UNITED STATES ARMY, FOR SERVICE WITH A DIVISION.*

By LIEUTENANT GEORGE H. RICHARDSON,
MEDICAL RESERVE CORPS, UNITED STATES ARMY.

IN connection with a diagram of the medical organization for service with a division designed for the purpose of instructing the Hospital Corps, and to show where the American National Red Cross can be of assistance in time of war, it would seem that an explanation, if the diagram were sufficiently explicit, would be reiteration, but I find an excuse for submitting this article in the fact that I have failed to embody in it all the details which it should contain.

I have endeavored to make the diagram as simple as the subject would allow, for I realize that in order to be of service it must appeal to the most inexperienced recruit and also to those who have but a limited knowledge of what an army division consists.

The "War Strength" of the various organizations composing the division is given, as enumerated in the Field Service Regulations, and for any information concerning the medical personnel, I have followed closely the Manual for the Medical Department. In stating the quota for the Army Nurse Corps, I have used my own judgment as to the number who could be utilized at the stations designated. In this, I can naturally conceive a difference of opinion which however is of no material consequence.

I will, first of all, explain wherein I feel that the diagram can assist in the instruction of the Hospital Corps.

The training of every enlisted man is primarily for the pur-

*NOTE:—Owing to contemplated changes in the Field Service Regulations, the diagram can be used only in a general way for purposes of instruction. Its usefulness in showing where the services of the American National Red Cross can be utilized will not be impaired. Upon the publication of these changes the diagram will be revised accordingly.

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pose of developing in him those qualities which shall make him useful in time of war. Unless he can be made to appreciate this fact he will not develop that enthusiasm which will create a desire for study, and his efforts, particularly in the Courses of Instruction as they are now authorized, will be prefunctory in character and necessarily superficial. Every effort should be made to show that the daily routine to which he is subjected in garrison or hospital work is only the means of fitting him for the more important duties of active military service, when such services shall be required.

I believe that, if in the teaching of the subjects comprised in the Course of Instruction, he could be shown by reference to the diagram, the various positions where his knowledge could be utilized in time of war, he would take hold of his daily studies and exercises with more zeal and in the direct ratio that he can be impressed with this importance.

For instance, the necessity of being well versed in all that pertains to the first aid treatment of gun-shot wounds, would be evident to the man who desires to be on duty at the "Dressing Stations" as he could readily see that this qualification would be absolutely essential if he were assigned here for duty.

The man whose special qualification is "Care of Animals" should be made to feel that his services are just as necessary as those of a licensed druggist and that as one of the 308 members of the "Ambulance Stations" he is a very useful member in making complete the efficiency of his corps.

Those on duty at the field hospital will be men as capable of nursing and have special training in this branch of medical work. They will also be associated with some who are druggists and others who will have charge of property and the hospital records.

These men, by a study of the diagram, will appreciate the necessity of quick, efficient work and that while they may not be immediately on the "firing line" they are as much a part of the "Service of the front" as if they were directly attending to the wounded where they fell.

The location of the various stations, while necessarily di-

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agramatic, will be understood by every man and the interdependence of one upon the other made clear and distinct.

I am also of the opinion that it will be of value in proving that the prompt rendering of all military reports is necessary, even from the smallest component part of the division, in order that the senior medical officer may be in touch with every detail that might aid him in obtaining from his subordinates the expeditious return of all papers, which I have heard is, on some occasions, a difficult task.

I can conceive where it might assist the surgeons of the various State Militia in explaining to those in authority the importance of procuring an adequate equipment of medical supplies in order that they might be in a position to take the field at a moment's notice and form an integral part of a division or at least of a brigade.

The American temperament is eminently practical in its composition; one must prove definitely to each person that he wishes to interest, the value of his arguments. It very seldom, if ever, will voluntarily subscribe funds or influence to a new idea.

We have not in this country a king or an emperor, who by becoming the Honorary President of an organization, so attracts the public mind that it hastens to take an active part in the enterprise. We must appeal directly to the intelligence of each individual in order to arrest them in their hurried struggle for advancement.

The American National Red Cross was reincorporated in 1905 and under a new administration, which is in direct relation with the War Department, is endeavoring to interest the people of this country in its organization. One of its claims for their support is that, if sufficiently assisted by the representative men of the various states, it will be in a position to augment the medical department of the Army and Navy in time of war and will be so well managed that it would be selected as the distributor of the voluntary offerings of the public to the soldiers and sailors. As I have said before, no matter how worthy the object, the average American will not of his own volition become

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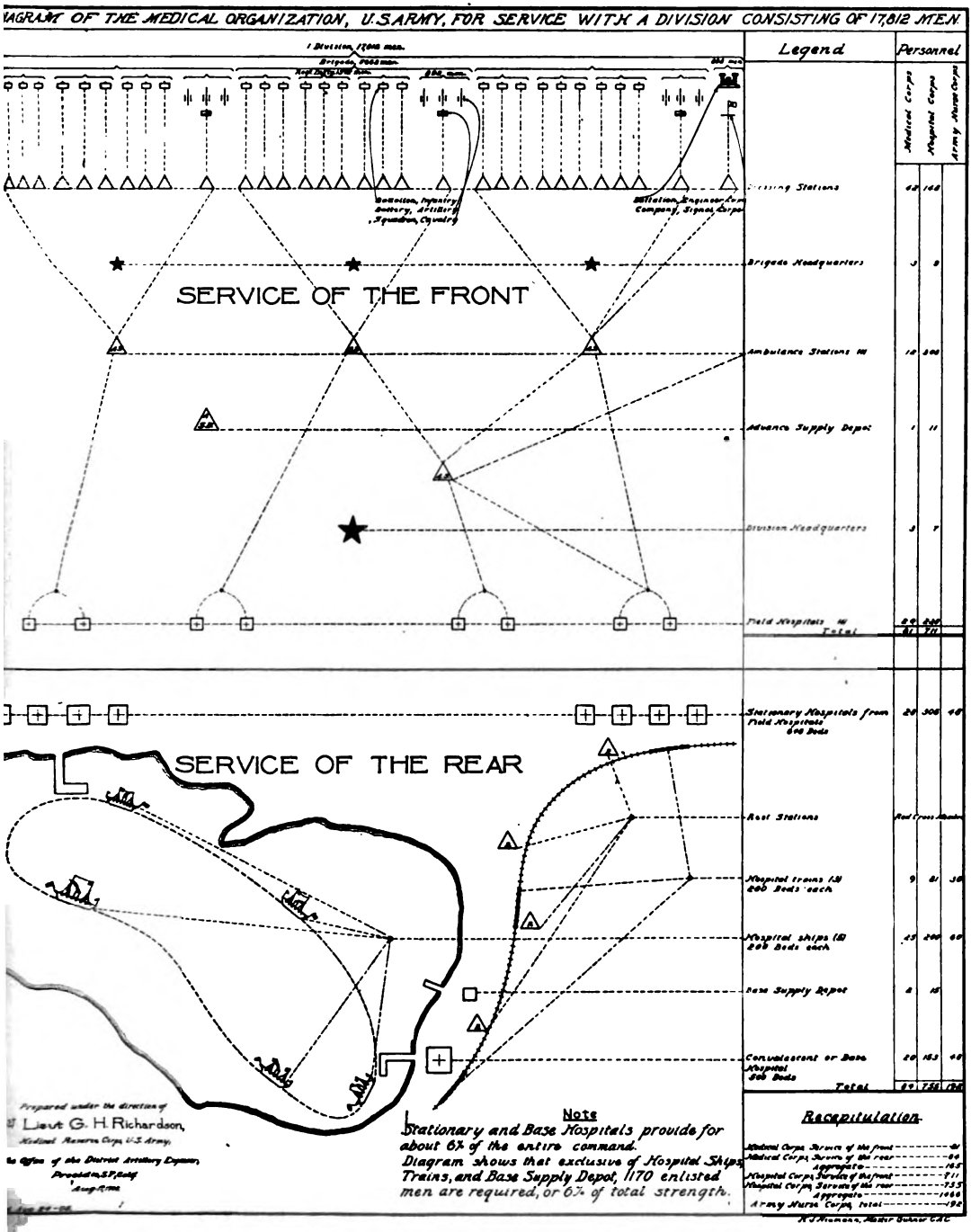
AGRAM OF THE MEDICAL ORGANIZATION, U.S.ARMY, FOR SERVICE WITH A DIVISION CONSISTING OF 17,812 MEN
Legend
Personnel
Medical Corps
Hospital Corps
Infantry Battalion, Engineer Co., Company, Signal Corps
SERVICE OF THE FRONT
Brigade Headquarters
Ambulance Stations
Advance Supply Depot
Division Headquarters
Field Hospitals
Total
SERVICE OF THE REAR
Stationary Hospitals from Field Hospitals
Rest Stations
Hospital trains
Hospital ships
Base Supply Depot
Convalescent or Base Hospital
Recapitulation
Aggregate
Army Nurse Corps, total
Prepared under the direction of
Lieut G. H. Richardson,
Medical Reserve Corps U.S. Army,
Note
Stationary and Base Hospitals provide for about 6% of the entire command.
Diagram shows that exclusive of Hospital Ships, Trains, and Base Supply Depot, 1170 enlisted men are required, or 6% of total strength.

Diagram of the Medical Organization, U.S. Army, for Service with a Division.

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a member of this society. He is by temperament and education independent in his nature and must decide for himself. The Red Cross must therefore show a reason for its existence and some authority for its statement before it can expect the encouragement it desires.

In the lower half of the diagram I think I have made clear the necessity of having a trained personnel in order to properly care for those sick and wounded of a division, whose injuries or illness are of such a character that they are unable to return to the front. I have endeavored to show how the organized Red Cross Society, working in harmony with the Army Medical Department can be of great assistance.

One is surprised to find how little the average person knows of the strength of the Army and the relation which the Medical Department bears to it. They little realize that to care for a division of 20,000 men, 1,200 Hospital Corps are necessary. If we multiply these figures by ten we can see at once the terrible limitations of our present force, and we find a rational basis for the society's statement and the intense interest which the War Department evidences in its growth and development. We know that it takes time and training to make medical aid effective in time of war, so we should begin immediately to formulate plans for the future even though the necessity for such aid may seem extremely remote.

I have purposely limited the scope of the Red Cross to "Service of the Rear" for I am insistent upon this point and it is only the exceptional circumstance which would make justifiable it being employed elsewhere. Its right to recognition by the military authorities depends upon its being willing to be a part of the general military scheme and to be able to render help and assistance, when called upon to do so. I shall try and give in detail those arguments which I think the Red Cross should emphasize in order that it may more clearly present its case.

An army in active campaign must have two so-called "Field Hospitals;" one of these must be mobile in character and capable of following the advance movements, while the other is stationary, yet in direct communication with the other. It is prac-

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tically dependent on the mobile hospital for its patients, as the sick and wounded are a hindrance to the combatant forces and should be rapidly sent from the field of active operations.

In this stationary hospital we first find the Red Cross physicians and nurses of service. Here is an excellent field for our surgical specialists and for all forms of scientific investigation, such as the x-ray work. The sick may be compelled to remain for some time in its ward before they are recovered sufficiently to be transferred to their commands in case of recovery or if permanently disabled back to the Base or Convalescent Hospital.

The Army Nurse Corps can be here employed to advantage, as everything necessary for good work will be furnished, which cannot be available in the mobile hospital.

This hospital, if we were in conflict with a nation which is a member of the Geneva Convention, would be recognized by the belligerents. Its personnel, if they were members of the Red Cross, would be ranked as non-combatants and as such would be free from capture and would not be disturbed in their duties.

If I may be allowed to divert, I consider this one of the best arguments in favor of the fact that all members of the Association of Military Surgeons should become a unit in working for the interests of the National Society, for there is a likelihood that independent organizations might not be recognized and would consequently fail in their efforts, becoming a hindrance rather than an assistance to the Army.

The sick and wounded in the Stationary Hospital must soon be removed, for it has but a limited capacity, as will be seen by the diagram. To do this, Hospital Ships and Hospital Trains are necessary, which I have embodied in the chart and connecting the stationary hospital with the base or convalescent hospital.

It is needless for me to say that these ships and trains must be specially constructed in order to properly care for the sick, requiring operating rooms, wards and equipment, such as it takes considerable time to collect and furnish.

These cannot be had at a moment's notice, and as wars are

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seldom expected, the Red Cross contemplates procuring the supplies necessary and having them in readiness. The Base or Convalescent Hospital could practically be equipped and manned by the Red Cross Society, for it would be in the home territory.

The rest stations, four of which are indicated on the diagram, should be entirely under the direction of the Red Cross Society. They should be established at intervals of about six hours on the route over which the troops are passing, and should consist of two departments, one of which should minister to the temporal needs of the soldier by supplying them with fresh water, food, fruit and other supplies, while the second department should contain physicians and nurses with suitable equipment to care for any sick that might need temporary help.

This all looks very easy on paper, yet it is a procedure which requires very careful centralization and management in order that a surplus may not be accumulated in one place and a deficit be found in another.

It requires the services of men and women who are trained to their duties and who have made a study of the conditions as they existed in former wars, whose executive abilities have been tested, and whose mental and moral worth is such that they are beyond reproach.

The unpreparedness of this country, in so far as its Volunteer Aid Societies was concerned, was proven during the Spanish American War. It should be a lesson to those of us who are interested in military matters from a medical standpoint. I will not go into details and tell you my own exeperiences during 1898–1899 in the Philippines for many of you have had the same conditions to contend with and the recital of my narrative would be but "another story."

Much is being done to develop among our people a recognition of the claims of the society for their support. Legions of the Red Cross have been started in New York and California, made up of young men who are taught by regularly appointed physicians, the elements of first aid and hospital corps drill.

Nurses' Auxiliary Branches have been formed in many states and they are receiving instructions which will make them

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competent to replete and augment the ranks of the Nurse Corps of the Army and Navy.

Many well known physicians and surgeons are joining and volunteering their services in case of need. All these members receive the Red Cross Quarterly Bulletin which keeps them in touch with Red Cross work all over the world.

The Society is severely handicapped by having but a limited membership, which I believe is due to the fact that its claims have not been sufficiently presented; I personally feel it my duty as a physician and a citizen of this country to do all in my power to increase its efficiency and it was with that intention that this diagram was conceived.

Should any present feel that it would be of some personal assistance in aiding to advance the cause of the Red Cross or to interest his hospital corps detachment, I shall be only too glad to furnish him a copy at a price which shall cover the cost of the paper, postage and mailing tube.

The blue-prints are made for me in the office of the District Artillery Engineers, Presidio of San Francisco, by enlisted men of the best army in the world, and they do it because they feel that perhaps it may be of some service in keeping alive that patriotism which a "government of the people, by the people and for the people" must have in order to exist.

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RETROSPECT OF CO-OPERATIVE WORK OF THE MEDICAL SERVICES OF THE GOVERNMENT.

By H. W. AUSTIN, M. D.,

SURGEON IN THE UNITED STATES PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.

EACH medical service of the Government is, by the organic law of its establishment and by subsequent acts of Congress, charged with certain specific duties which, under Department regulations, constitute the usual duties of the medical officer in the different services.

Under these acts of Congress, and the regulations made pursuant thereto, the several medical services of the Government have on various occasions been required or authorized to perform the same duty, or to aid or co-operate with each other in some special duty. Again, under special acts of Congress and by Executive order, mixed boards have been created from the several services for scientific investigation or for the carrying out of sanitary measures, etc. Co-operative work by the services has not been infrequent in time of peace as well as in time of war. The assignment of officers of the Army and Navy to some special duty in other departments of the government is not limited to the Medical Corps. There are naval inspectors of light-houses along the coasts and rivers, Army engineers are engaged in the same service and also frequently assigned to engineering work (not military) under other departments of the government.

Co-operation between the several departments of the government in furnishing relief to the sick and injured in any great disaster to the people, such as floods, fires, epidemics and earthquakes has been the policy of the government from early times. Notable instances of co-operative relief work between the three medical services of the government may be mentioned: The

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Johnstown flood, the Chicago fire, various epidemics of yellow fever and the San Francisco earthquake and fire.

In every war in which the United States has been engaged, from 1812 to the present, the medical officers of the Public Health and Marine-Hospital Service have cared for the sick and wounded soldier, sailor or marine, in hospital, aboard United States revenue cutters and army transports, in camps or aboard sanitation ships. During the war of 1812 all of the wounded naval sailors of the frigates *Constitution* and *Guerriere* after their memorable action were treated in the United States Marine Hospital at Boston, as were also many naval seamen and marines from the frigates *Chesapeake*, *Congress*, and *United States* and the brigs *Syren* and *Hornet*.

During the civil war 648 United States soldiers, sailors and marines were treated at this same hospital and in many other United States Marine Hospitals they were received, but of the number in each I have no authentic record. Several of the hospitals were temporarily turned over to the War Department.

During the Spanish-American war, by order of the President, the United States Marine Hospitals were again open for the reception of United States soldiers, sailors and marines and 547 were admitted and given medical and surgical relief by the officers of the Marine Hospital Service.

The detention camp at Egmont Key, Fla., was virtually a hospital camp built for the reception of troops returning from Cuba to the United States. In this camp were received six hundred and eighty officers and soldiers of the United States Army. Of these there were 303 cases of malarial fever, 9 cases of typhoid fever and 101 cases of dysentery. Many of these troops were from the army hospital at Siboney and barely convalescent from yellow fever. It was a camp of invalids. The medical officer in command reported that nearly all were in a condition of pitiable prostration. They were given medical relief by this service and cared for until they were able to travel, when their baggage was disinfected and all were sent to New York by steamer, except thirty-two commissioned officers who proceeded north by train.

In the transfer of Shafter's army from Santiago to the

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United States the recommendations of the Surgeons-General of the Army and Marine Hospital Service were, by order of the Secretary of War, put into effect, and upon request of the Secretary of War a National Quarantine was established by the Marine Hospital Service at Montauk Point for the returning troops.

The United States quarantine steamer *Protector*, which was under construction at Philadelphia, was rapidly completed and at great expense equipped with steam chambers, sulphur furnaces, bichloride tanks, pumps, shower baths, beds, bedding, medical and other supplies and was dispatched to Montauk Point, arriving there in time for the first transport.

Six medical officers of the Marine Hospital Service, two hospital stewards and twenty-one attendants were engaged in this work.

Thirty-two transports arrived between August 13 and September 13, 1898, bringing about 17,000 troops, of which number 2,200 were reported sick. There were fifty deaths from various diseases en route but only four cases of yellow fever arrived at Montauk Point. This war emergency quarantine which was established on very short notice was most successful and received the hearty support and cooperation of the medical officers of the army.

In 1899 one hundred United States troops from the military hospital at Santiago, were by request of General Wood, placed aboard a vessel at Santiago under the supervision of a medical officer of the Marine Hospital Service where they were cared for about one month when they were able for duty.

A commissioned officer of the Marine Hospital Service was by authority of the President temporarily transferred and appointed Brigade Surgeon, United States Volunteers, during the Spanish-American War.

By Executive order dated January 4, 1900, the "National Quarantine Act" of February 15, 1893, and all regulations made pursuant thereof were given full force and effect in the Philippine Islands. All the maritime quarantine stations were turned over to the United States Marine Hospital Service and a number of officers of this service were assigned to duty there under the

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direction of one of them, designated the Chief Quarantine Officer of the Philippines. The Chief Quarantine Officer was also appointed Director of Public Health of the Philippines and still holds this office.

During the military government of the islands, the Chief Quarantine Officer was, by Executive order, made ex-officio a member of the Military Governor's Staff, then General MacArthur. The sanitary supervision over all incoming and outgoing government vessels including army transports and naval vessels (non-combatant) requiring cooperative work between the services made this appointment essential.

In 1902 and 1903, a large number of medical officers of the army serving at military posts in small coast towns of the Philippines were by request of the Chief Quarantine Officer detailed by the General in Command of the Philippines Division to act as quarantine officers at these posts to carry out the quarantine regulations of the Treasury Department and there are two medical officers of the army still performing this duty. For several years a medical officer of the navy has been detailed to enforce the National Quarantine regulations at Cavite, Philippine Islands, by request of the Chief Quarantine Officer of the Islands. All army transports and naval supply vessels are disinfected at Marivales before leaving that port for the United States.

By request of the Commanding Officers and upon recommendation of the Naval Medical Officer, United States battleships and cruisers have at different times been given sanitary treatment at the National Quarantine Stations under the direction of officers of the Public Health and Marine Hospital Service. A recent instance of this was in the battleship *Nebraska* on which scarlet fever developed among the sailors just prior to the date appointed for the fleet to leave San Francisco for their voyage around the world.

From six to eight officers of the Public Health and Marine Hospital Service are each year detailed on United States revenue steamers cruising in the Arctic Ocean or Behring Sea or off the coasts of Porto Rico or Hawaii.

In time of war the Cutter Service becomes a part of the

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naval establishment and, as in the Spanish-American War, these medical officers would be performing similar duty to that of the medical officers of the navy. The officers and crews from these vessels and also the officers and crews of the army transports are treated at the United States Marine Hospitals.

The State Department in its Consular Service furnishes information to the Public Health and Marine Hospital Service of the prevalence of epidemic diseases and of the sanitary condition of the cities in which they are stationed. They also furnish bills of health to vessels bound for American ports under regulations furnished by the Surgeon General of the Public Health and Marine Hospital Service.

The Medical Corps of the Army and Navy have at different times taken part in the preventive measures in times of epidemics in the United States and in our insular possessions.

By an act of Congress approved March 24, 1874, a commission of medical officers, one from the United States Army and one from the Marine Hospital Service was appointed by the President to investigate and obtain all information possible regarding the epidemic of cholera that prevailed in the United States in 1873, and to make a detailed report to the President to be submitted to Congress. In this epidemic there were 7,356 cases and 3,800 deaths and the work involved in obtaining information and making a full report of this great epidemic which prevailed so extensively was a difficult and laborious task. The published report of the Commission, a volume of 1,025 pages, is a valuable record of the history of that epidemic.

In the epidemics of yellow fever in the United States in 1878, and at later dates the medical officers of the Army, Navy and Marine Hospital Service worked together in relief work and also took part in the preventive measures adopted by the state authorities.

The Government Medical Services have achieved much in the field of preventive medicine and for many years officers from each service have devoted much time in the investigation of the etiology of, and in preventive measures against yellow fever, and the lives of many officers of the Public Health and Marine Hos-

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pital Service have been sacrificed in this work. Six medical officers of the Public Health and Marine Hospital Service have died of yellow fever in these investigations, and in the execution of quarantine measures adopted by the Government; and four officers of this service died of other diseases due to exposure in this same work. I have no data of the mortality due to this cause in the other government services.

The crowning event of the work in the investigation of yellow fever was the discovery made by the commission of army medical officers, Reed, Agramonte, Carroll and Lazear, that the disease is transmitted by the mosquito and by the mosquito only.

In this work Lazear sacrificed his life and other members of the commission contracted the disease but recovered.

The remarkable scientific observations made by Surgeon Carter, Public Health and Marine Hospital Service, that the yellow fever infection was extrinsic, that the place did not become infected for some days after the disease occurred, together with Finley's early contention that the mosquito could transmit the disease, the commission stated, influenced them to investigate along this line. These earlier investigations no doubt helped in clearing the way and pointed the direction.

This discovery rendered possible some of the most brilliant achievements in modern preventive medicine. The eradication of yellow fever from Havana by the medical officers of the army in 1901, under Colonel Gorgas, and the successful campaign waged against yellow fever in New Orleans by the medical officers of the Public Health and Marine Hospital Service under Surgeon White, in which a great epidemic was at once controlled and was extinguished long before frost in 1905.

When the government undertook the work of building the Isthmian Canal, one of the greatest difficulties to be overcome was to make the Canal Zone safe for the men to live there who were to engage in this stupendous operation.

A number of medical officers from each government service, Army, Navy and Public Health and Marine-Hospital Service were detailed for this work under the Isthmian Canal Commission and they are still engaged in it. These officers were

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selected by reason of their experience in work of this character. The Chief Sanitary Officer is from the army, the Director of Hospitals in the Canal Zone is from the Public Health and Marine Hospital Service, the Chief Quarantine Officer of the Canal Zone and the Quarantine Officer at Christobal are from the Public Health and Marine Hospital Service. Numerous other army medical officers are also there. The sanitary work which has been in progress four or five years is one of the triumphs of preventive medicine.

During the great epidemic of small-pox which occurred in Montreal and throughout the Province of Quebec in 1885 and 1886, valuable assistance was given by some of the medical officers of state troops in the preventive measures taken by the Marine Hospital Service along the Canadian border. This work, which lasted about six months, was a practical demonstration on a grand scale of the value of railroad inspection and sanitation and vaccination. Small-pox was kept out of the United States with but little interference with travel between Montreal and other points in Quebec and the United States.

By virtue of an act of the Legislative Assembly of Porto Rico, the Governor of Porto Rico appointed a commission of medical officers, one from the United States Army, one from the Public Health and Marine Hospital Service and the health officer of Bayamon, for the study and treatment of anemia. Confirmation of the appointments was made by the Secretaries of the Treasury and War. The work of the commission covering a period of several years in the investigation of the prevalence of uncinariasis throughout the island and in the demonstration of its successful treatment was of immense value to the inhabitants of Porto Rico. This report was published by the Government of Porto Rico and widely distributed to the medical profession.

The line of duty of the medical officers in the Army, Navy and Public Health and Marine Hospital Service affords opportunities to each corps to study tropical diseases and many other diseases not indigenous in the United States. They are serving in the Philippines, in Japan, in China, in Cuba, in South America, in Panama, in Porto Rico, in Hawaii, in Alaska, at quaran-

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tine and immigration stations and at Army, Navy and Marine Hospitals in the United States and aboard naval vessels.

In this broad field they obtain a knowledge of tropical and other diseases not common in the United States. However it is not my purpose to mention in detail the work of the services but rather to show the close relation of duties performed by each in which co-operative work has been or may be required. It is in that greater field of preventive medicine where the close relation of duties exists. History repeats the fact that the greatest injury to the people of a nation on account of war is not the loss of life or limb in battle but rather to disease.

The ravages of war are not all upon the battlefield. The ravages of disease which begin in camps, and in foreign climates, are brought home by the returning troops. Epidemics, most appaling, have at different times resulted from the return of an army, and many diseases unknown before have been introduced.

The Public Health and Marine Hospital Service is charged by law with the prevention of the introduction and spread of contagious or infectious diseases in the United States and in our insular possessions. By an act of Congress, the officers of this service are also made available for duty in times of actual or threatened war in such manner as the President may direct.

In the event of war, co-operation between the medical services would be necessarily frequent, mainly in the field of preventive medicine.

War with any eastern power would necessitate the frequent transfer of large bodies of troops to the seat of war or to our insular possessions and their return from the field. There would be constant communication between the United States and the seat of war by the fleets of the Navy, the United States Army Transports and other vessels brought into the service of the United States.

The officers of the Public Health and Marine Hospital Service stationed in the Philippine and Hawaian Islands as Directors of Public Health of the Islands or the officers at the various National Quarantine Stations in the Philippine and Hawaian Islands and Porto Rico as well as those in the United States are

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in a position to be of great service to the military and naval forces of the United States. The stations are in commission at all times and equipped fully for the sanitation of vessels and the care of their sick. Their anchorages are safe for naval vessels and their wharves ample. These officers are expert in ship sanitation and understand the handling of men. Troops or sailors can be put in barracks, the vessels given complete sanitation, the sick isolated in hospital, and the troops returned with the least possible detention. Should cholera, plague or yellow fever occur aboard a battleship or army transport in the Philippines the great importance of these stations would be manifest.

Each service has its hospital where the young officer may acquire a practical knowledge of the treatment of medical and surgical diseases, hospital management and discipline, and each officer must be a competent physician and surgeon; but as he advances in his grades and his experience broadens he becomes more and more convinced that his primary duty is that of a health or sanitary officer.

In this day of the universal awakening of the people to the fact that a very large percentage of the mortality from disease is due to preventable diseases, the medical officer must be learned in sanitary science, familiar with the sanitary laws and regulations, and have the savoir faire and courage to put them into effect, frequently against strong opposition. His success in preventive medicine will often depend upon his skill in diplomacy, his ability to educate the layman or public, in the subject of sanitation, and convince them of the necessity of the preventive measures he would adopt, and to obtain their confidence and active support.

ILLUSTRATIVE ORDERS.

ADJUTANT-GENERAL'S OFFICE,
Washington, August 11.

Commanding General United States Forces,
Santiago de Cuba.

The Secretary of War directs that the following instructions be sent you:—

That medical officers of the United States Marine Hospital Service be immediately detailed for duty at Santiago, and subsequently at other Cuban

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or Porto Rican ports under control of the United States forces, to carry out the requirements of the quarantine law of 1893; such officers to issue certificates and perform other duties of sanitary or other port inspectors.

That all sanitary matters pertaining to the condition of transports and crews be placed under the jurisdiction of the medical officers of the Marine Hospital Service. Every vessel engaged in the transport service between the United States and Cuban or Porto Rican ports to carry a medical officer of the Army or of the Marine Hospital Service, whose duty shall be that of sanitary inspector of the vessel and who shall see that in every foreign port no material or person is taken aboard liable to convey yellow fever; to keep the crews of the transports under surveillance, and on the return voyage act as sanitary inspector.

That there be placed at Santiago and every chief port where practicable a receiving ship for the reception of those who take passage for ports in the United States. This ship would practically be a detention camp and quarantine station, and passengers seeking homeward voyage would then be taken from this vessel after they had undergone a period of observation and disinfection of their effects.

Surgeon Carter, United States Marine Hospital Service, has been appointed sanitary inspector at Santiago.

H. C. CORBIN,
Adjutant General.

HEADQUARTERS OF THE ARMY,
ADJUTANT GENERAL'S OFFICE,
Washington, D.C., January 20, 1899.

By direction of the Secretary of War, the following orders of the President are published for the information and guidance of all concerned:

EXECUTIVE MANSION,
Washington, D.C., January 17, 1899.

To prevent the introduction of epidemic diseases, it is ordered that the provisions of the act of Congress approved February 15, 1893, entitled an "act granting additional quarantine powers and imposing additional duties upon the Marine Hospital Service," and all rules and regulations heretofore prescribed by the Secretary of the Treasury under that act are to be given full force and effect in the islands of Cuba and Porto Rico, and the following additional rules and regulations are hereby promulgated.

The examination in ports of the islands of Cuba and Porto Rico of incoming and outgoing vessels and the necessary surveillance over their sanitary condition as well as of cargo, passengers, crew, and of all personal effects, is vested in and will be conducted by the Marine Hospital Service, and medical officers of that Service will be detailed by the Secretary of

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the Treasury as quarantine officers at the ports of Habana, Matanzas, Cienfuegos, and Santiago immediately, and at other ports in the islands of Cuba and Porto Rico as soon as practicable or necessary. Quarantine officers shall have authority over vessels, their wharfage and anchorage in infected seaports, in so far as is necessary to prevent the infection of vessels or their personnel, and all vessels including vessels of the army transport service and merchant and coastwise vessels, leaving ports in the islands of Cuba or Porto Rico for the United States or for other ports in the islands of Cuba or Porto Rico, vessels of the United States Navy excepted. Quarantine officers will enforce necessary measures on incoming vessels through collectors of customs at ports of entry, who will not permit entry without quarantine certificates, and bill of health will not be given to an outgoing vessel unless all quarantine regulations have been complied with. All officers of the army transport service and medical officers of the Army and Marine Hospital Service on duty on army transports will use every precaution to prevent danger of exposure to infection of crews while in the ports in the islands of Cuba or Porto Rico.

Since the quarantine service herein provided for is for the protection of the islands of Cuba and Porto Rico as well as the protection of the United States against both, the expenses arising therefrom will be charged at present both against the revenues of these islands and the epidemic fund; said expenses will be divided equally against both, payments, however, to be made out of the epidemic fund and reimbursement made thereto from the revenues of the islands of Cuba and Porto Rico.

WILLIAM MCKINLEY.

By Command of Major General MILES:

H. C. CORBIN, Adjutant General.

(Executive Order)

EXECUTIVE MANSION,

Washington, D.C., October 10, 1900.

On and after October 15, 1900, there shall be detailed on the staff of the military Governor of the Philippine Archipelago, as chief of the quarantine service established by Exectuive order of January 3, 1900, a commissioned officer of the Marine Hospital Service, who shall on the first day of the month, or at such other periods as may be directed by the military governor, submit to the military governor a detailed estimate of the quarantine expenses of the said islands of the Philippine Archipelago. After approval of such estimate by the military governor the chief quarantine officer shall make requisition for the funds required in favor of the disbursing officer or agent of the Treasury Department, who shall pay the bills and vouchers on account of the quarantine service upon the certificate of an officer detailed under executive order of January 3, 1900 (said order being still in force except as herein amended), and after approval by the chief quarantine

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officer. The disbursing officer or agent shall be appointed by the Secretary of the Treasury as soon as practicable, and shall render his accounts of such disbursements in accordance with the rules and instructions to carry into effect the Executive order of May 8, 1899, relative to the military government of the United States in the islands of the Philippine Archipelago during the maintenance of such government.

WILLIAM MCKINLEY.

TREASURY DEPARTMENT
Office of the
SUPERVISING SURGEON GENERAL
MARINE HOSPITAL SERVICE,
Washington, D.C., May 2, 1898.

To Medical Officers of the Marine Hospital Service:

The United States Marine Hospitals are hereby made available for the the reception of the sick and wounded of either the United States Army or the United States Navy, and you are hereby directed, upon a written request of the proper military or naval authority, to receive and care for said patients; the Marine Hospital Service to be reimbursed the actual cost of maintenance.

WALTER WYMAN,
Supervising Surgeon General, M.H.S.

Approved:
L. J. GAGE,
Secretary.

Executive Mansion, May 2, 1898.
Approved:
WILLIAM MCKINLEY.

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TROPICAL DISEASES IN THE PHILIPPINES.

By CAPTAIN JAMES M. PHALEN,
MEDICAL CORPS UNITED STATES ARMY.
AND LIEUTENANT HENRY J. NICHOLS,
MEDICAL CORPS UNITED STATES ARMY.

THE Board for the Study of Tropical Diseases as they exist in the Philippine Islands submits the following report of its work during the quarter ending June 30, 1908:

FILARIASIS.

As was noted in the last report a case of filariasis was found by Captain Eastman, Medical Corps, United States Army, in a colored soldier, Private Rivers, Twenty-fifth Infantry, stationed at Parang, Mindanao, and was sent to the Division Hospital, Manila, by the Surgeon of that post, Captain Rand. This soldier came from Charleston, South Carolina, and had been in the Philippine Islands but five months when the infection was discovered. This filaria was of a nocturnal variety, but the question of its identity was in doubt. It was therefore considered advisable that one of us should go to Parang to examine the other soldiers at that post and natives of the section.

All of the enlisted men at Parang, 420 in number, were examined for nocturnal filariae and one other case was found in the same company as the first case. This man, Private Vives, a Porto Rican age twenty-three, left Porto Rico in August 1906 for the United States and enlisted in October 1906 in the Twenty-fifth Infantry. As he was in Rivers' company for nearly two years, it seems probable that he was the source of infection of the latter.

With the assistance of Lieutenant Wiegenstein, Twenty-fifth Infantry, Quartermaster, and Lieutenant Bugbee, Twenty-fifth Infantry, Presidente of Parang, 266 persons living in Parang, Bacolod, and near the dock at Parang were examined. Five infections with filaria nocturna were found; two in Filipinos, two in Moros, and one in a Japanese. Both Filipinos had been muchachos in officers' families in near-by posts for several years. One was born in Misamis and one in Cotabato, but both

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had lived in various places in the southern islands. Both Moros were Quartermaster employees, born near Cotabato, and have lived all their lives near that place. The Japanese had been in the Philippines five years, of which the first three years had been spent on the island of Luzon and the last two years at Parang. Captain Rand later found another case in a muchacho of one of the companies, who had evaded our examination. None of those affected showed any symptoms whatever.

A trip was then made to Cotabato, where eighty-five men of the Eighth Company, Philippine Scouts, Macabebees, were examined with negative results. One case was discovered among thirty Moro prisoners, a man who had lived in the vicinity of Cotabato all his life. He too showed no symptoms due to the malady.

By the exercise of a good deal of diplomacy and persistence on the part of Lieutenant Glass and Dr. Delacroix, Datto Piang was persuaded to allow some of his men at Duluan to be examined. No case was found in sixty men examined. Among ninety-two members of the forty-fifth Company of Philippine Scouts at Cudarangan, across the river from Duluan, four cases were found and two more cases among twenty-three women of the company. All four Scouts, however, were recruits of less than one year's service, and had been in the Cotabato valley less than six months. They had spent most of their time in their home towns, Ivisan, Panay, Initao and Mambogao, Mindanao and Cebu. The two women had come a short time previously from Davao. These results are interesting as they show that the natives of the Cotobato valley have very little filariasis, while in Davao, the next district to the eastward, according to reliable reports, cases of elephantiasis are frequent and filariasis probably also.

Out of 104 native Quartermaster employees at Camp Overton, Mindanao, one case, was found. This man had lived thirteen years at Tacloban, Leyte, one year at Manila, and the last five years at Camp Overton.

Of 203 residents of Cebu, who were examined with the assistance of Major Dutcher, Medical Corps, United States Army, two were infected. One was the wife of a man who had a lymph scrotum, but whose blood showed no parasites. Both of this

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couple were young and had lived all their lives near Linao, six miles from Cebu. The other case was a Cebu policeman, a native of Zamboan, Cebu, who had lived, however, in different parts of the island.

A total of 863 persons were examined in Mindanao and Cebu, of whom fifteen or one and seven-tenths per cent were infected. The case of lymph scrotum found in Cebu and noted above, was the only one which showed symptoms which might be referred to a filarial infection.

The following table shows the result of these examinations, by towns and by nationalities:

Place.	Number examined.	Cases.	Filipinos.	Moros	Japanese.	Chinese.
Parang.....	266	5	113	95	39	19
Cotobato.....	115*	1	86	29	..	..
Cudarangan.	115†	6	115	..	..	..
Duluan.....	60‡	0	...	60	..	..
Overton.....	104	1	104	..	..	..
Cebu.....	208	2	208	..	..	..
Total.....	863	15	621	184	39	19
Per cent infected.....	1.7	..	1.8	1.6	2.6	0

Of seventy-four women examined three and four-tenths per cent were found to be infected.

The other member of the Board in the meantime made a trip to Camp Daraga, Albay, for the purpose of investigating the presence of filariasis and elephantiasis in this section of southern Luzon. The existence of a large number of these maladies was suspected from cases seen previously in Sorsogon province, these cases being brought in as suspect lepers during the segregation of the lepers in that section. Through the good offices of the Governor of Albay province, and with the assistance of Captain Collins, Medical Corps, United States Army, thirty-four cases of elephantiasis were found, together with fourteen cases of filariasis. As these fourteen cases were found among 114 persons examined, a percentage of twelve and three-tenths, the indications are that this section of southern Luzon is

* 85 Philippine Scouts.
† 92 Philippine Scouts.
‡ Datto Piang's men.

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one of the most heavily infected sections of the islands, and the fact that seven out of nine previously reported cases among the native population were natives of this section, bears out that view.

Altogether thirty cases of filariasis have been seen by the members of the Board during the quarter. The parasites present in all these cases have been apparently of one species. The accompanying table shows the periodicity of a number of the parasites observed.

CASES.	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10
12.00 m.....	..	..	..	..	1	0	..	..	0	0
1.00 p. m.....	0	0	0	1	..	..	0	0	..	..
2.00 p. m	..	..	..	..	1	1	..	..	0	0
3.00 p. m	0	0	0	0	..	..	0	0	..	..
4.00 p. m.....	..	..	..	..	2	1	..	..	0	2
5.00 p. m.....	0	0	0	0	..	..		0	..	..
6.00 p. m.....	..	..	..	..	2	3	..	..	0	3
7.00 p. m.....	3	3	2	1	..	..	12	0	..	..
8.00 p. m.....	..	..	..	..	0	2	..	..	2	12
9.00 p. m.....	6	4	1	10	..	..	13	1	..	21
10.00 p. m.....	..	..	..	..	1	6	..	..	0	23
11.00 p. m.....	11	5	4	12	..	..	..	3	..	46
12.00 p. m.....	..	..	..	..	0	10	41	..	4	32
1.00 a. m.....	3	3	1	9	..	..	..	5	..	..
2.00 a. m.....	..	..	..	..	1	..	19	..	0	39
3.00 a. m.....	10	1	1	3	..	..	..	0	..	..
4.00 a. m.....	..	..	..	..	0	3	..	..	5	42
5.00 a. m.....	6	3	7	1	..	..	6	2	..	..
6.00 a. m.....	..	..	..	..	1	1	..	..	2	18
7.00 a. m.....	3	1	2	0	..	..	13	0	..	..
8.00 a. m.....	..	..	..	..	3	1	..	..	0	2
9.00 a. m.....	0	0	1	1	..	..	6	0	..	..
10.00 a. m.....	..	..	..	..	3	0	..	..	0	0
11.00 a. m.....	0	0	0	0	..	..	0	0	..	..

REMARK.—Cases Nos. 1, 2, 3, 4 and 5 were from Parang, 6 from Cotabato, 7 from Cudarangan, 8 from Overton, 9 from Cebu and 10 from Albay.

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It will be seen that case number 5 is the only one that failed to show a nocturnal periodicity. The series of slides in this case, however were not very uniform, and when an attempt was made to secure another series, the patient, a Moro at Parang had taken to the hills. The morphology of the filarial embryo in this case agreed with that of the others. The lack of periodicity may have been due to a slight or to a beginning or ending infection. We are of the opinion that all of the filarial embryos seen by us during the quarter, together with those that we have seen heretofore, were those of the *Filaria Bancrofti.*

In our last report we spoke of the efforts of Captain E. R. Whitmore and ourselves to infect monkeys with this parasite. Monkeys were exposed to the bites of mosquitoes which two weeks before had fed upon a filaria patient, and one was given an intravenous injection of blood, in which it was estimated there were six thousand embryos. Captain Whitmore also imbedded an infected mosquito under the skin of a monkey, the mosquito being recently killed and broken up before being imbedded. Up to the present no filarial embryos have been recovered from the blood of this animal.

BILHARZIOSIS.

Through the courtesy of Dr. T. W. Jackson, United States Army, we were permitted to observe a case of Intestinal Bilharziosis, which was found by him at Fort William McKinley. The patient, a white soldier in the Engineer battalion, went to Porto Rico with a Volunteer regiment in 1898. After having been there about two months he acquired an attack of diarrhea which necessitated his being sent home about one month later. He recovered from this trouble shortly after arriving in the United States. He has since served in various posts in the United States and for two years served in Alaska. Previous to his coming to the Philippines, in August 1907, he has had no return of the bowel trouble. Since coming here he has served at Grande Island, Camp Stotsenburg and Fort William McKinley. While at Camp Stotsenburg, in November 1907, he was on sick report with acute dysentery, which kept him in the hospital for two months. After one month's duty, he returned to sick report, this time at Fort William McKinley. While examining his stools for amebae, Dr. Jackson found Bilharzia eggs having a

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lateral spine. The eggs are never numerous and are found only when the stools contain a small amount of blood. We have been able to make permanent mounts of a few of the eggs, and a good photomicrograph of them has been obtained.

Careful examination of this patient's stools have failed to locate any motile amebae, but what were thought to be vegetative forms were found and a culture of amebae was obtained. As infections with the Bilharzia trematode having lateral spined eggs are frequent in the West Indies, it is likely that this infection was acquired while the patient was in Porto Rico. The fact that he has suffered from no bowel trouble during the subsequent nine years, indicates that his present complaint is due to amebae rather than to the trematode infection.

PARAGONOMIASIS.

No new cases have been observed during the past quarter. In our last report we spoke of having hatched out a ciliated embryo from the eggs, and of having made efforts to infect monkeys by immersing the shaved skin of a monkey in water containing the free embryos; also by introducing eggs containing the embryos into the peritoneal cavity, and into the stomach by means of a stomach tube. After an interval of three months, autopsies upon these monkeys disclosed no evidence of infection having taken place. These experiments support the theory that development in an intermediate host is a necessary preparation for these embryos to become infective.

AMEBAE.

Advantage has been taken of every opportunity for the observation of amebae in fresh specimens, and for their cultivation. Quite a number of cultures have been obtained, though during the absence from Manila of both members of the Board, some of them died out from being overgrown by the symbiotic bacteria, and from lack of transplantation. Our further observations only confirm our previous views upon the unreliability of accepting the morphological character of an ameba as an index to its pathogenic powers. If there is a distinction to be drawn between a pathogenic and a non-pathogenic ameba, which we are not prepared to admit, it is too obscure for the

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average laboratory worker, and therefore of no practical value as an aid to diagnosis.

CUTANEOUS BLASTOMYCOSIS.

A number of new cases of this interesting and important skin disease, have come under our observation during the quarter, mainly through the kindness of Dr. Saleeby of St. Luke's dispensary, Manila. One case now under observation is apparently of a similar character to those reported in the United States by Drs. Hyde and Montgomery, and others. Many of the other cases are of a milder character, and clinically resemble the skin infections with the ordinary fungi. A study is being made of the blastomyces in cultures and in sections, as well as in fresh preparations, and it is expected that a special report upon this subject can be made in the near future.

TINEA IMBRICATA.

Foreman says "Apparently a large majority (perhaps seventy per cent) of the Parang-Parang Moros have a loathsome skin disease." This is tinea imbricata which affects about twenty per cent of the Moros at Parang, Cotabato and Duluan. The entire body is covered with scales which form figures on the chest and back. The skin is greatly thickened. One Datto was anxious to have his son cured, but most Moros are indifferent to the disease saying that if cured it would come back and makes no difference anyway. A man affected is popularly known as "pescado."

YAWS.

Yaws is very common in the Cotabato district. Landor speaks of seeing "many children all suffering from terrible ulcers all over the body and face, caused by the worst of venereal complaints, the existence of which I had noticed in most Mohammedan settlements I had visited on Mindanao." Cases were seen, especially in Moro children at Parang, Cotabato and Cudarangan. At Datto Piang's place it was said that all the children had it at one time or another. A common location was on the sole of the foot where the skin cracked over the yaw; circinate forms were also seen. At Jolo Major Snyder had a case from Cagayande Jolo; Captain Shimer observed a case on the island of Pilas, near Zamboanga, and a case was seen in a prostitute at Iligan.

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LACERATION OF THE BRAIN AND SUB-DURAL HEMORRHAGE — REPORT OF A CASE SUCCESSFULLY TREATED BY MEANS OF BI-LATERAL INTERMUSCULO-TEMPORAL DECOMPRESSION.

By CAPTAIN ALEXIUS McGLANNAN,

MEDICAL DEPARTMENT, MARYLAND NATIONAL GUARD.

OUR knowledge of the effects of increased intra-cranial pressure is largely the result of study of tumors of the brain and its appendages. Physiologists, neurologists, and surgeons have all contributed information. Recently the surgeon neurologists, notably Cushing, have applied this knowledge to the treatment of traumatic lesions of the skull and its contents. A number of valuable articles have been published. Although the work is still in its beginning, enough experimental and clinical evidence has been recorded to justify operation for the relief of pathological tension of the cranial contents and to allow us to recognize the condition in most cases.

Increased intra-cranial tension from injury is the result of hemorrhage and is always an acute compression. The effect of this compression is chiefly on the blood vessels with venous stasis as an early result, and later arterial compression with an increase of pressure. The increase in tension may be local or general. The distinction between local and general increase is important, because it is possible to have a great degree of local pressure without serious general symptoms, while even a less severe general pressure will be fatal because of implication of the vital centers of the medulla in the general anemia.

The danger of increased intra-cranial tension is compression anemia of the vital centers of the medulla, but nature has provided physiological methods for their protection. The falx cerebri, tentorium, and other membranes so separate the different parts of the brain, that it is possible to have a high degree of

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local pressure at a distance from the medulla without serious vital disturbance. The membranes protect the vital region, and the free circulatory anastomoses quickly balance the blood supply. On the other hand, when there is general increased tension the protection must be vascular alone. Here we see a most elaborate system of pressure balance developed by the circulation of the cerebro-spinal fluid, and local and general variations in blood pressure progressively coming forth to protect the medulla. Of course an injury involving the medulla may at once destroy the vital centers, or an injury may be so severe that all the powers of compensation are unable to balance the pressure, and coma and death quickly follow.

Kocher (Nothnagel's *Specielle Path. und Therapie*, 1901), has divided the effects of increased tension into four stages, representing progressive increase of tension. Clinically it is common to have the symptoms bridge these stages. Occasionally the process is arrested at one or the other stage, or it may pass directly on to the last almost immediately, depending on the severity of the lesion. The stages of general increased tension, as described by Kocher, are:

First. The stage of compensation in which the escape of cerebro-spinal fluid and the narrowing of the veins makes the disturbance slight and without severe symptoms.

Second. Failing compensation. Here the pressure is sufficient to lessen the amount of blood flowing through a considerable part of the capillary field, but without serious alteration in the nutrition of the vital centers.

Third. General circulatory involvement. Here the tension is sufficient to involve the medulla and call forth the general vasomotor regulation for compensatory action.

Fourth. Failing general compensation.

The symptoms of compression vary with the stages and progress in a like manner. Serious cases pass rapidly on to the late stages. At first the symptoms may be mild and insignificant. Headache is practically always present, and with it there may be some mental dullness. Later, in progressive cases, or early in the more serious injuries, in addition to pronounced

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headache we note vertigo, restlessness, excitement or delirium. Now certain objective symptoms become apparent. Of these the rise in blood pressure and the state of the eye grounds are most important. The ophthalmoscope reveals dilation of the veins which are also tortuous, and often a beginning edema of the nerve. The external veins of the head, especially the venules of the eye lids, are dilated and the face is usually cyanosed.

In the third stage there is a marked rise in blood pressure; the respiration approaches the Cheyne-Stokes type; the pulse is slowed to 40-50 per minute and is bounding in character, of the vegal quality. Examination of the retina shows choked disk. As the fourth stage is approached there is gradual failure of the compensatory action of the general circulation, the blood pressure falls, the pulse becomes rapid, the heart's action and the respiratory movements become irregular, and the patient passes into coma and dies from respiratory paralysis.

The treatment is at once apparent. If the progressive increase of intra-cranial pressure leads to this final wearing out of compensation, or if the tension has already worn it out, the proper procedure is to relieve the pressure. This is best done by the intermusculo-temporal decompression operation (H. Cushing, *Surg. Gyn. and Obst.*, March, 1908).

The advantages of this particular method are many. It uncovers the middle meningeal artery and the tips of the temporal lobes, the structures most often damaged in head injuries. The resulting bone defect is covered by strong muscle which controls the tendency to hernia of the brain. The operation can be performed rapidly and with safety.

Technique of operation. (*Surg. Gyn. and Obst.*, March, 1908; *Annals of Surgery*, May, 1908). The patient's head is carefully prepared by shaving and scrubbing. It is not necessary to shave the entire scalp, a point of importance when operating on women. The shaved area can be so mapped out that after recovery the remaining hair may be arranged to hide the defect. The scrubbing must be very thorough and the scalp further cleaned by ether, alcohol and bichloride. The incision is made in either of two ways—a crescentic incision about an inch above

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the ear, the points of the incision coming about an inch in front of and an inch behind the tip of the ear. The scalp is reflected down uncovering the temporal fascia. Or a straight incision may be made over the temporal region down to the fascia. With either method of exposure the fascia is divided perpendicularly, the muscle fibers separated bluntly and retracted. The skull is exposed at the bottom of the wound and a button of bone removed by the trephine. If the bony opening requires enlargement, this is done by flat rongeur forceps. With sub-dural lesions the dura bulges into the wound and is opened after it has been picked up with forceps and transfixed by fine silk retraction sutures. In opening the dura care must be taken to avoid wounding the pia. After the dura is open, the clot, if any is found, is gently removed by salt sponging, etc., and any bleeding point is ligated. In closing the wound the dura is not sutured, the muscle and fascia are brought together with fine catgut and the scalp sutured with interrupted fine silk. In traumatic cases with sub-dural hemorrhage it is necessary to drain, because of the oozing which we can not stop. A small piece of protective is brought out from the brain through the lower angle of the wound. This drain and the silk sutures are removed at the end of forty-eight hours. Whenever the unilateral decompression does not relieve the pressure symptoms a similar opening should be made on the other side.

The following is the report of my case of laceration of the brain and sub-dural hemorrhage cured after the decompression operation:

Laceration of brain, sub-dural hematoma, cerebral compression. Bilateral intermusculo-temporal decompression. Recovery.

The patient, a white man, age 26, was admitted to the City Hospital May 31, suffering from an injury to the skull. He had fallen from a tower, about eighteen feet, striking on his head. He was unconscious and had a scalp wound. When admitted he came under the care of Dr. A. C. Harrison, to whom I am indebted for the opportunity of treating the patient and reporting this case. On June 4th Dr. Harrison was called out of town and left the patient in my charge. At that time the patient had rallied somewhat. Consciousness had not been fully restored, although he seemed to understand commands. He was quite restless and rather incoherent in his speech. The pulse and respiration had been for the most part about

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80 and 24, occasionally dropping to 68 and 18 respectively. On June 4th there was no cyanosis, the circulation and respiration were undisturbed, and the condition seemed to be that of the second stage of compression, with local compensation. There was a gradual change in the condition until the eighth day, when there were fairly distinct evidences of increasing tension. The pupils were evenly dilated and reacted normally. The pulse became slower and the respirations a little stertorous, with cyanosis of the face and some superficial venous engorgement. On this account I had Dr. Herring, the neurologist of the hospital, see the patient and give his opinion concerning operation. Dr. Herring noted among other conditions, double choked disk more marked on the right side. Considering this in connection with evident failure of local compensation, and the absence of any focal symptoms, we decided that a sub-temporal decompression should be done on the right side.

Operation June 8th, 1908. Intermusculo-temporal decompression of the right side.

Under ether anesthesia I opened the skull through the split temporal muscle. There was no extra-dural lesion, and the dura bulged through the bone opening under considerable tension. When the dura was incised about 5 cc. of straw-colored fluid spurted out. The tip of the temporal lobe was badly lacerated and softened, but no distinct clot was found. A searcher passed down under the temporal lobe allowed the evacuation of a considerable quantity of blood-stained fluid. A protective drain was brought out from the brain through the lower angle of the wound and the wound closed in the usual manner.

There was no shock and the patient recovered from the anesthetic without any trouble. There was immediate relief of the general circulatory disturbance, but the patient remained unconscious and the eye grounds on both sides continued to show choked disk. At the first dressing on the fourth day after operation, the stitches and the drain were removed. The wound had healed per primam except at the drainage opening. There was distinct bulging of the temporal area and a slight flow of bloody fluid followed the removal of the drain. The wound went on to final healing without complications.

There was no further change in the condition of the patient, the choked disk and the unconsciousness persisted. The bulging of the decompressed area was constant. About the tenth day after the operation occasional evidences of failing general compensation began to occur. There would be periods of cyanosis, with stertor and slow bounding pulse, associated with periods of fluctuation in blood pressure and approach to the Cheyne-Stokes type of respiration. A second decompression on the other side was strongly advised, but the patient's friends objected to further operation. On June 24th, after consultation with Dr. Charles Magill, the family physician, consent was obtained and I decompressed on the left side.

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Operation June 24th, 1908. Intermusculo-temporal decompression of left side.

The skull was opened as in the first operation and the dura incised. A lenticular clot was found under the dura, extending forward over the temporal lobe. The bone opening was enlarged to allow the complete removal of the clot by wet salt sponges. No bleeding point was found and the wound was closed with a drain in the usual way. The patient showed considerable mental improvement soon after the operation. The stitches and drain were removed on the fourth day after the operation and the wound healed without complications. The eye grounds cleared up. Then followed a period of no change that lasted for several weeks. The patient was more or less unconscious, would obey orders, but took no interest in his surroundings. This period was followed by one of gradual improvement, ending in recovery.

On October 1st the patient reported at the hospital and was examined by Dr. Schmitz, the resident surgeon, who reports him completely recovered.

STAB WOUNDS OF THE ABDOMEN.

IN the *Muenchener Med. Wochenschrift*, Dr. Hartleib reports an interesting case of a young boy who received a stab wound in the abdomen, inflicted by his comrade with a pocket knife. Operation seventy-three hours later with recovery. The author received the patient for treatment fifty-three hours after the injury. At this time there were no signs of perforation; temperature was normal; pulse 104. The following morning the pulse was 84; temperature normal; in the afternoon vomiting occurred, temperature 38, pulse 104; abdomen tympanitic. Laparotomy in the evening; on opening the abdomen two small cuts of about one cm. in size were found in the intestines. Gas escaped through the cuts. Peritoneum inflamed in the immediate neighborhood of the cuts. Milko asserts that in most cases of abdominal injury it is easy to decide whether operative measures are necessary or not, and cites as a constant symptom the reflex contraction of the muscles of the abdominal wall. The author's case, as well as many others reported in medical literature, proves the contrary. The time limit at which the patient is out of danger can not be fixed within the first week of the abdominal injury.—FRED. J. CONZELMANN.

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Contemporary Comment.

TYPHOID FEVER.

IN five years Chantemesse (*Roths Jahresbericht*) has treated 712 typhoid fever patients with his serum with a mortality rate of 3.7 per cent. In the hospitals with the usual treatment of typhoid the mortality rate was 17.3 per cent. From a large clinical material one may judge the results of his treatment from the death rate, the lower the death rate the better the treatment. Favorable results with Chantemesse's serum were also obtained by other observers. The War Department has adopted the treatment for the army. The dose consists, as a rule, of an injection of one c. c. per forty Kg. body weight. The reaction lasts usually five days, showing enlargement of the spleen, a marked leucocytosis and a slight increase in temperature. The temperature begins to fall suddenly; the earlier the treatment is begun the quicker the fever disappears. In very severe cases a second injection of one-half the previous dose may be necessary. Complications were few. Recovery took place in all patients in whom the serum was used in the first week of the disease. Harrison reports the results of the protective inoculation in an epidemic of typhoid fever among the men of the 17th Lancers with a new preparation. The dose was one and two c. c. containing, respectively, 500 and 1,000 million bacteria. The second dose is absolutely necessary and it is to be administered at an interval of ten days. The only case of typhoid fever that occurred among the inoculated was one who had refused the second dose. Seven hours after the injection there is a rise of temperature and a moderate general disturbance. After thirty hours all manifestations have disappeared apart from the sensibility to pressure at the point of injection. A revaccination after two years is at present essential. The vaccine can be kept one year. The addition of an antiseptic makes it possible to keep the vaccine for

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further use even if part of the contents of a flask has been used. The Roux syringe containing 5 c. c. appears to be the best. The vaccination is voluntary. The men are instructed about protective vaccination. The number of men vaccinated depends entirely how the matter is presented to them. It varies between 0 and 50 per cent.—FRED J. CONZELMANN.

SUTURE OF LUNG AFTER GUNSHOT INJURY.

IN the *Muenchener Med. Wochenschrift*, Dr. Schuette remarks that if one considers the great advances that surgery has made in the last decades one is astonished to find that rarely surgical measures are employed for traumatic hemorrhage of the lungs. This is especially surprising as the results of the conservative treatment are far from being satisfactory. G. Garres' statistics of 700 cases of traumatic hemorrhage of the lungs with conservative treatment show a mortality rate of 40 per cent. Richter found in thirty-seven cases of subcutaneous rupture of the lungs a total mortality rate of 63 per cent; in 100 stab wounds a mortality rate of 38 per cent, and in 535 gunshot injuries of the lungs a mortality rate of 30 per cent. Until now only twelve cases of traumatic hemoptysis have been reported in medical literature. In three of these cases a tampon was used and in the other nine, suture was employed. Three of the latter died. The author reports an interesting case of attempted suicide. The patient had shot himself in the third left intercostal space. The symptoms indicated that a severe hemorrhage was taking place in the lungs. The author decided to operate. On opening the thoracic cavity, the technic of it is given in detail, blood was spurting freely from the upper lobe. The lung tissue was sutured. Resection of the seventh rib was also performed in order to provide proper drainage. The author concludes that in all cases with severe hemorrhage where life is in immediate danger, operative procedure is imperative. Patients who have lost much blood should, after the bleeding points have been sutured, receive a large infusion of normal salt solution. As a prophylactic measure to avoid empyema the resection of the seventh rib in the posterior axillary line is advised.—FRED J. CONZELMANN.

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Editorial Expression.

"ON TO RICHMOND"— THE CHANGE OF ADDRESS OF THE SECRETARY AND THE MILITARY SURGEON.

IT is announced that on and after the first of December, 1908, the office of the Secretary will be located at Richmond, Virginia, where THE MILITARY SURGEON will also hereafter be published. The increasing membership of the Association renders a more central and accessible location desirable for the more efficient conduct of its work, which will also be materially advanced by the facilities of a larger city. These reasons, together with certain personal considerations, have been the compelling factors which have brought about this movement. The Secretary believes that the transfer bodes well for the future of the Association.

THE PURIFICATION OF WATER FOR MILITARY PURPOSES.

WATER forms so important an item in military hygiene that even when nothing new or startling is advanced it is worth while to consider the views held in other countries. This comment is applicable to an interesting paper by Dr. E. Ravenez in *Der Militaeraerzt*, the enterprising Austro-Hungarian military medical bi-weekly. He emphasizes the fact that as harmlessness is the essential requirement for potable water it follows that the hygienic condition of the water must be known before it is used for drinking purposes. To determine this in the field it is necessary that a chemical and bacteriological examination be made with portable apparatus, unless it is possible to refrain entirely from using it. In case the employment of water from an impure source is unavoidable, the problem of

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rendering it potable is readily solved by the use of a proper method of purifying the water supply.

He catalogues the different methods of purifying water as: 1. Mechanical (filtration through porcelain and sand filters), 2. Physical (sterilization by heat and ozone), 3. Chemical (bromine, iodine, etc.).

If these methods are carefully carried out, pure water in a bacteriological sense may be obtained. Theoretically the methods are highly recommended but practically they are not always suitable for the purpose. The best results will be obtained by a careful consideration of the indications for purifying the water and also of the advantages and disadvantages of the various methods. Certain methods for purification which give good results for troops stationed for some time in the field would be out of the question for troops on the march and the method used for a large body of soldiers would not be applicable to a small number stationed at an isolated post. The circumstances and surroundings would have to decide the method which should be used and which would most effectually satisfy the requirements at the moment. The chemical method would be most satisfactory for troops on the march as it is simple and consumes but little time. The easy transportable sterilization apparatus which may be sent ahead of the troops to prepare the required amount of water needed, have proven very efficient. These methods have also proven their value in garrisons, but here it will be more advantageous to put up more lasting establishments instead.

PUBLIC HEALTH AND MARINE HOSPITAL EXAMINATIONS.

A BOARD of commissioned medical officers will be convened to meet at the Bureau of Public Health and Marine Hospital Service, 3 B street S.E., Washington, D.C., Monday, January 11, 1909, at 10 o'clock a.m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine Hospital Service.

Candidates must be between twenty-two and thirty years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character.

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The following is the usual order of the examinations: 1. physical; 2. oral; 3. written; 4. clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate.

The examinations are chiefly in writing and begin with a short autobiography of the candidate. The remainder of the written exercise consists in examination in the various branches of medicine, surgery and hygiene.

The oral examination includes subjects of preliminary education, history, literature and natural sciences.

The clinical examination is conducted at a hospital, and when practicable, candidates are required to perform surgical operations on a cadaver.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur.

Upon appointment the young officers are, as a rule, first assigned to duty at one of the large hospitals, as at Boston, New York, New Orleans, Chicago, or San Francisco.

After four years service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Promotion to the grade of surgeon is made according to seniority and after due examination as vacancies occur in that grade.

Assistant surgeons receive $1,600, passed assistant surgeons $2,000, and surgeons $2,500 a year. Officers are entitled to furnished quarters for themselves and their families, or, at stations where quarters can not be provided, they receive commutation at the rate of thirty, forty, and fifty dollars a month according to grade.

All grades above that of assistant surgeon receive longevity pay, ten per cent in addition to the regular salary for every five years service up to forty per cent after twenty years service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For further information, or for invitation to appear before the board of examiners, address "Surgeon-General, Public Health and Marine Hospital Service, Washington, D.C."

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News of the Services.

Acting Assistant Surgeon F. C. Abbott, P.H.&M.H.S., granted seven instead of fourteen days leave.

Acting Assistant Surgeon E. Alexander, P.H.&M.H.S., granted fourteen days leave.

Medical Inspector F. Anderson, U.S.N.,ordered from the Mare Island Navy Yard to command the Annapolis Naval Hospital.

Passed Assistant Surgeon John F. Anderson, P.H.&M.H.S., granted seventeen days leave.

Lieutenant Colonel D. M. Appel, U.S.A., granted one month's leave.

Major P. M. Ashburn, U.S.A., promoted from captain with rank from June 24, 1908.

Acting Assistant Surgeon C. A. Bailey, P.H.&M.H.S., ordered to St. John, N. B., to examine aliens.

Acting Assistant Surgeon C. W. Bailey, P.H.&M.H.S., granted fourteen days leave.

Acting Assistant Surgeon W. Barnes, P.H.&M.H.S., granted twenty-one days leave.

Lieutenant C. A. Betts, M.R.C., ordered to active duty at Fort Lawton, Washington.

Medical Director H. G. Beyer, U.S. Navy, has reviewed the reports received from naval surgeons attached to ships of war on the subject of organization of the naval medical department for battle and has submitted suggestions for improvement in that organization, as contemplated in the surgeon general's annual report of last year. The lack of directions and the absence of definitions in the manual leave, of course, the doors wide open for a great variety of plans in general organization and in establishing the required relief and dressing stations, even on ships of the same build and type. Considerable confusion seems to exist in the minds of medical officers as to what organization means, what relief and dressing stations are intended for and of what they should be made up. Their number, location, personnel, and equipment vary quite considerably on the different ships from which the reports have been examined. As the result of an examination of the reports from 25 ships it is found that nothing is said as regards instruction being given to the men in 15 ships, 60 per cent; that there is limited instruction in 5 ships, 20 per cent; that there is instruction given to the whole crew in 5 ships, 20 per cent in all 25 ships, 100 per cent. In the 25 reports of ships and cruisers it is found, therefore, in brief, that the instruction (in accordance with the letter and the spirit of the manual) to the men is given only in 5 of the 25 ships of which the reports were examined.

Passed Assistant Surgeon W. C. Billings, P.H.&M.H.S., ordered from Vancouver, British Columbia to Washington, D. C., for further orders; ordered to Arundel Cove, Md., for duty on the *Itasca*; appointed member of the Baltimore Revenue-Cutter Service Retiring Board.

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Captain E. G. Bingham, U.S.A., ordered to inspect Hospital Corps Detachments of the New York State National Guard in Buffalo, Rochester and Binghamton, N. Y.

Captain W. N. Bispham, U.S.A., ordered before the Manila Promotion Board.

Captain R. M. Blanchard, U.S.A., ordered from Fort Wingate to Fort Sheridan.

Captain H. D. Bloombergh, U.S.A., ordered from Fort Leavenworth to Manila.

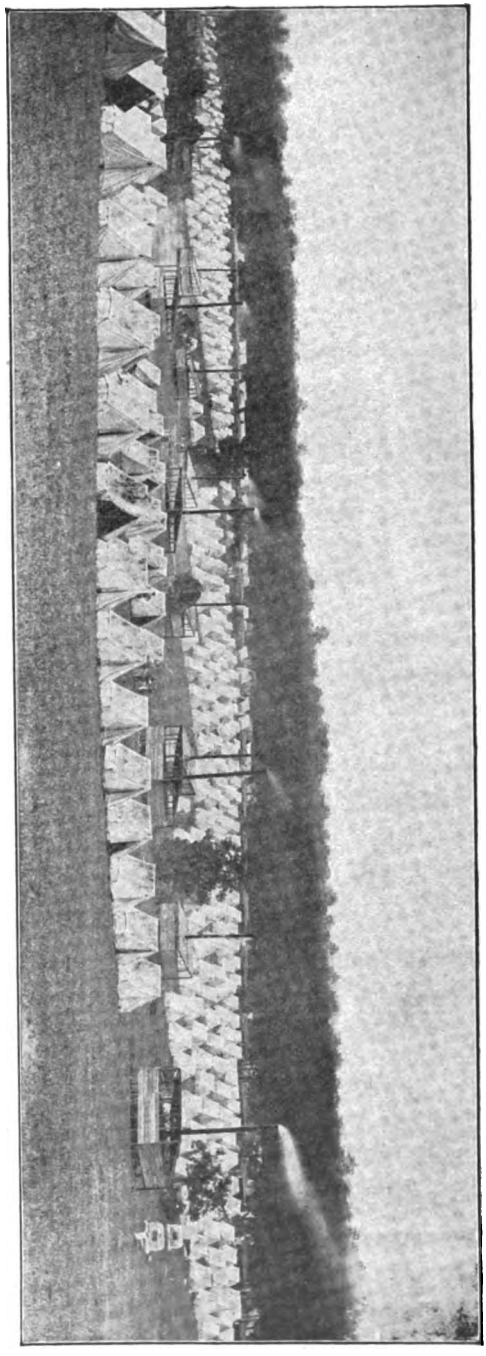
Surgeon E. S. Bogert, Jr., U.S.N., ordered from the New York Naval Recruiting Station to the New York Marine Recruiting Station.

Acting Assistant Surgeon W. R. Brinckerhoff, P.H.&M.H.S., ordered to Molokai Leprosy Investigation Station as often as public business requires.

Assistant Surgeon F. M. Brooks, U.S.N., ordered from the Boston Naval Hospital to the Cleveland Naval Recruiting Station.

Acting Assistant Surgeon R. W. Browne, P.H.&M.H.S., granted twenty-nine days leave.

Surgeon W. H. Bucher, U.S.N., granted three months sick leave when discharged from treatment at the Las Animas Naval Hospital.



First and Third Infantry, Tennessee State Troops, at Camp Wm. H. Taft, Chickamauga Park, 1908.

Courtesy of Captain James H. McCall.

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Lieutenant Maurice Buchsbaum, M.R.C., ordered to active duty at Fort D. A. Russell, Wyo.

Passed Assistant Surgeon J. T. Burkhalter, P.H.&M.H.S., appointed member of the Baltimore Revenue Cutter Service Retiring Board.

Dr. J. L. Burkhart, U.S.A., ordered home to Grand Rapids, Mich., for annulment of contract.

Surgeon D. A. Carmichael, P.H.&M.H.S., granted 18 days leave.

Surgeon D. N. Carpenter, U.S.N., ordered home from the Cavite Naval Station.

Major J. R. Church, U.S.A., promoted from Captain with rank from May 1, 1908.

Passed Assistant Surgeon Taliaferro Clark, P.H.&M.H.S., ordered to Schuylkill Haven, Pa., to examine an insane alien, and to points in Pennsylvania, New Jersey and Delaware to examine aliens; reassigned to duty at Philadelphia, Pa.

Passed Assistant Surgeon L. E. Cofer, P.H.&M.H.S., ordered from Hawaiian Islands to Washington, D.C., for further orders.

Captain C. LeR. Cole, U.S.A., promoted from First Lieutenant with rank from May 13, 1908.

Captain Walter Cox, U.S.A., ordered before the Manila Promotion Board.

Passed Assistant Surgeon R. H. Creel, P.H.&M.H.S., ordered to the Hygienic Laboratory for temporary duty.

Passed Assistant Surgeon H. S. Cumming, P.H.&M.H.S., granted one month's leave.

Passed Assistant Surgeon P. T. Dessez, U.S.N., ordered from the *South Dakota* to the Pacific Fleet; ordered to temporary duty at the Mare Island Naval Hospital.

Assistant Surgeon M. Donelson, U.S.N., ordered from the *Stringham* to the *Macdonough;* ordered from duty with the Third Torpedo Flotilla to the *Celtic.*

Lieutenant James C. Dougherty, M.R.C., ordered to active duty at the expiration of his present leave.

Major B. H. Dutcher, U.S.A., ordered to Plattsburg Barracks.

Assistant Surgeon General J. M. Eager, P.H.&M.H.S., appointed member of the Committee on Revision of the Nomenclature of Diseases of the American Public Health Association.

Lieutenant Colonel R. G. Ebert, U.S.A., granted ten days leave.

Surgeon M. S. Elliott, U.S.N., ordered from the *Maine* to the Washington Naval Hospital.

Lieutenant Julius A. Escobar, M.R.C., fell into an open well at Imus, Cavite, P.I., November 15, 1908, and was drowned.

Acting Assistant Surgeon Edward W. Fahey, P.H.&M.H.S., granted nineteen days leave.

Passed Assistant Surgeon A. M. Fauntleroy, U.S.N., ordered from the Naval Medical School to the Annapolis Naval Hospital.

Captain J. D. Fife, U.S.A., ordered from Fort Slocum to the Philippines, November 5.

Acting Assistant Surgeon C. E. Fisher, P.H.&M.H.S., granted ten days leave.

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Major J. H. Ford, U.S.A., promoted from captain with rank from May 20, 1908.

Passed Assistant Surgeon Edward Francis, P.H &M.H.S, granted ten days leave.

Lieutenant H. L. Freeland, M.R.C.,, granted twenty days leave.

Assistant Surgeon W. H. Frost, P.H.& M.H.S., ordered to the Hygienic Laboratory for temporary duty.

Captain E. G. Geddings, U.S.A., ordered before the Washington Promotion Board.

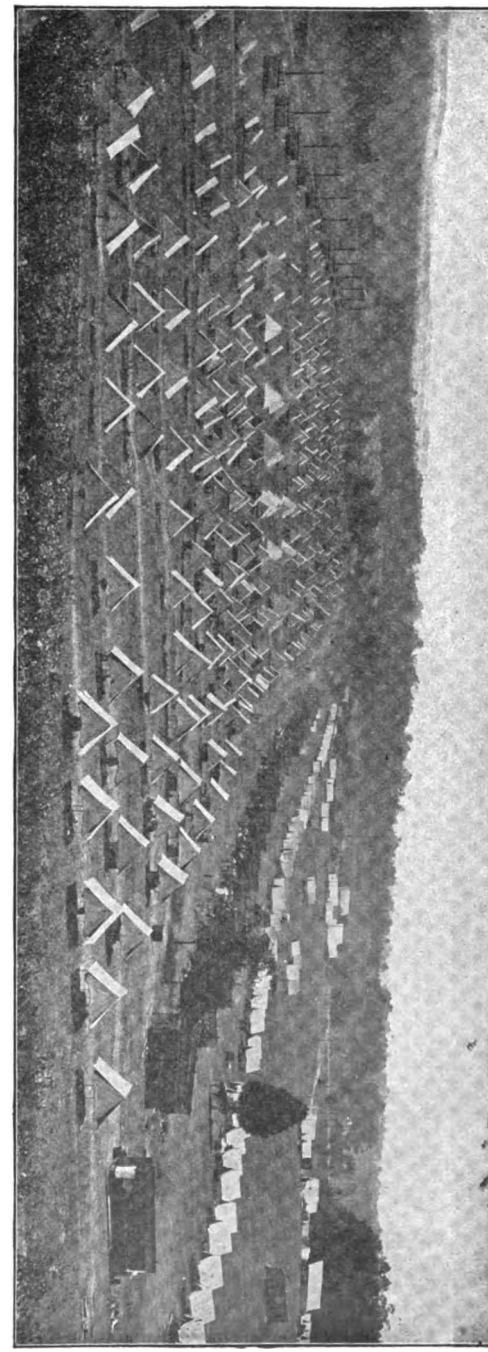
Acting Assistant Surgeon S.G. Gill, P.H.& M.H.S., granted twenty-eight days leave.

Acting Assistant Surgeon Henry Goldthwaite, P.H.&M.H.S., granted twenty-one days leave.

Assistant Surgeon R. M. Grimm, P.H.&M.H.S., commissioned October 20, 1908, and ordered to the Chicago Marine Hospital.

Captain R. B. Grubbs, U.S.A., ordered from Fort McIntosh to Fort Sam Houston for observation and treatment.

Passed Assistant Surgeon, S. B. Grubbs, P.H.&M.H.S., directed to proceed to St. Petersburg, Russia; Berlin, Germany; and Libau, Russia; upon special temporary duty, September 4, 1908, and detailed



First, Second and Third Infantry, Alabama State Troops, at Camp Wm. H. Taft, Chickamauga Park, 1908.

Courtesy of Captain James H. McCall.

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to represent the Service at the meeting of the International Committee at Paris, November 4, 1908, then to return to New York.

Lieutenant A. M. Guittard, M.R.C., ordered to Fort Logan.

Acting Assistant Surgeon A. L. Gustetter, P.H.&M.H.S. granted ten days leave.

Colonel P. F. Harvey, U.S.A., left Chicago, Ill., on leave.

Lieutenant H. E. Hasseltine, M.R.C., granted two months leave from Fort Thomas.

Passed Assistant Surgeon V. G. Heiser, P.H.&M.H.S., detailed to represent the Service at the meeting of the Southern Medical Association at Atlanta, Ga., Nov. 10-12, 1908.

Lieutenant O. F. Henning, M.R.C., granted ten days leave about November 20, and relieved from active duty at expiration thereof.

Passed Assistant Surgeon W. S. Hoen, U.S.N., ordered from treatment at the New York Naval Hospital to the Oklahoma Naval Recruiting Station.

Lieutenant E. G. Huber, U.S.A., ordered from the Washington General Hospital to Fort Slocum.

Acting Assistant Surgeon C. W. Hughes, P.H.&M.H.S., granted one month's leave.

Acting Assistant Surgeon Lea Hume, P.H.&M.H.S., granted twenty days leave.

Surgeon Fairfax Irwin, P.H.&M.H.S., ordered to Arundel Cove, Md., for duty on the *Snohomish*.

Acting Assistant Surgeon James M. Jackson, Jr., P.H.&M.H.S., granted thirteen days leave and eight days without pay.

Lieutenant T. W. Jackson, M.R.C., ordered to return from leave in the United States to the Philippines.

Lieutenant H. W. Jones, U.S.A., ordered from duty as Surgeon of the transport *Buford* to the United States about January 15, 1909.

Assistant Surgeon H. L. Kelly, U.S.N., ordered from the Cavite Naval Station to the *Decatur* for duty with the First Torpedo Flotilla.

Assistant Surgeon General J. W. Kerr, P.H.&M.H.S., appointed delegate to the Convention of Mayors of North Carolina at Charlotte, N. C.

Captain E. D. Kilbourne, U.S.A., ordered to the Philippines.

Acting Assistant Surgeon W. A. Kimmet, P.H.&M.H.S., granted twenty-five days leave instead of one month.

Major J. S. Kulp, U.S.A., ordered before the Denver Retiring Board.

Lieutenant Colonel L. A. LaGarde, U.S.A., granted one month's leave.

Captain Theodore Lamson, U.S.A., granted one month's extension of leave.

Dr. F. C. Langdenderfer, U.S.A., arrived at San Francisco, Cal. on the *Sheridan* and ordered to Chicago, Ill., for annulment of contract.

Passed Assistant Surgeon C. H. Lavinder, P.H.&M.H.S., ordered to Columbia, S. C., for special temporary duty.

Lieutenant J. C. LeHardy, M.R.C., ordered to return to Fort Lawton from temporary duty at Fort Casey, thence to the Philippines.

Lieutenant Robert Lemmon, M.R.C., granted one month's leave; granted fifteen days extension of leave.

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Lieutenant H. F. Lincoln, M.R.C., ordered from Fort Sam Houston to the Philippines.

Surgeon C. H. T. Lowndes, U.S.N., ordered home from the *South Dakota*; ordered to the Mare Island Navy Yard and to additional duty in command of the Naval Medical Supply Depot at that place.

Acting Asst. Surgeon Robert Lyall, P.H.& M.H.S., granted twelve days extension of leave without pay.

Maj. Charles Lynch, U.S.A., ordered to inspect Hospital Corps Detachments of the New York State National Guard in New York City.

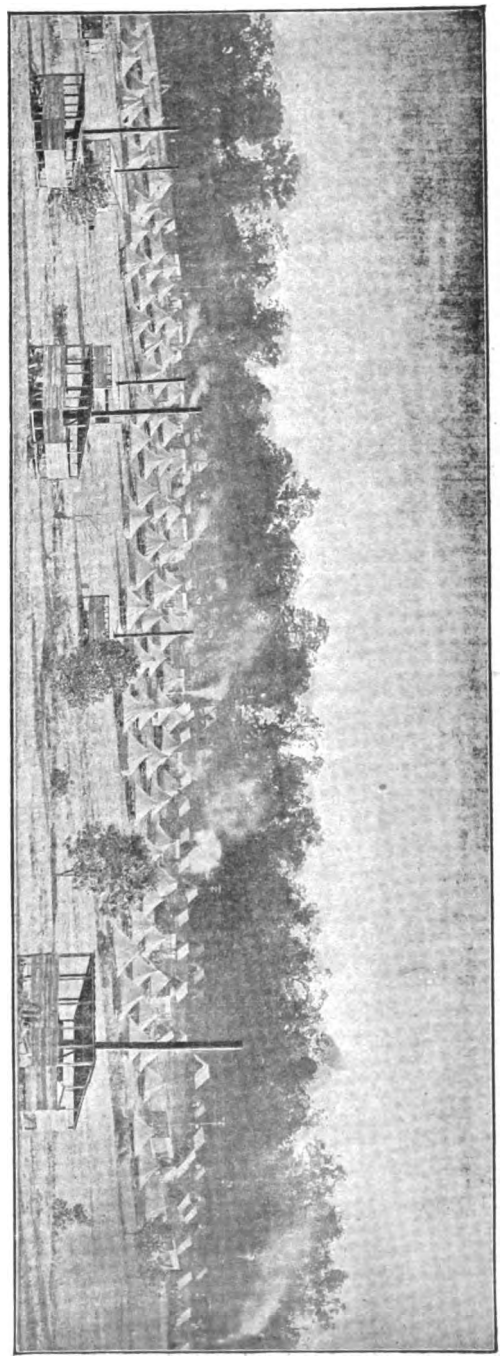
Lieutenant F. M. McCallum, M.R.C., having been found fit for duty, ordered to return to Honolulu, H. T.

Surgeon A. M. D. McCormick, U.S.N., ordered from the Baltimore Naval Recruiting Station to the *Maine* as Fleet Surgeon of the Third Squadron, Atlantic Fleet.

Surgeon W. P. McIntosh, P.H.&M.H.S., ordered to command the service at Baltimore, Md.

Passed Asst. Surgeon John McMullen, P.H.&M.H.S., reassigned to the Ellis Island Immigration Station.

Dr. T. O. Mansfield, U.S.A., contract annuled, his services being no longer required.



First Infantry, South Carolina State Troops, at Camp Wm. H. Taft, Chickamauga Park, 1908.

Courtesy of Captain James H. McCall.

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Acting Assistant Surgeon W. W. Marcoe, P.H.&M.H.S., granted one month's leave.

Passed Assistant Surgeon G. M. Mayers, U.S.N., unexpired portion of sick leave revoked; ordered to the Baltimore Naval Recruiting Station.

Dr. W. O. Montgomery, U.S.A., contract annuled, his services being no longer required.

Surgeon L. Morris, U.S.N., ordered to the Naval Station Cavite, P. I.

Captain C. F. Morse, U.S.A., granted one month's leave.

Lieutenant J. R. Mount, M.R.C., granted one month's leave about December 15.

Assistant Surgeon C. B. Munger, U.S.N., ordered from the *Maine* to the Portsmouth Naval Hospital.

Passed Assistant Surgeon F. M. Munson, U.S.N., ordered from the *Decatur* to the Canacao Naval Hospital for treatment.

Lieutenant Wilson Murray, M.R.C., ordered, upon expiration of leave, to Fort William Henry Harrison.

Surgeon O. D. Norton, U.S.N., ordered from the New York Marine Recruiting Station to the New York Naval Recruiting Station.

Acting Assistant Surgeon B. Onuf, P.H.&M.H.S., granted twenty-seven days leave.

Lieutenant J. A. Pargon, M.R.C., ordered to active duty at Fort Yellowstone, Wyo.

Captain R. U. Patterson, U.S.A., relieved from duty in command of Co. A, Hospital Corps, and ordered to report to the commanding general of the Army of Cuban Pacification for duty.

Captain E. E. Persons, U.S.A., ordered from the Philippines to the United States.

Lieutenant Omar W. Pinkston, U.S.A., relieved from duty as surgeon of the transport *Crook*.

Assistant Surgeon Paul Preble, P.H.&M.H.S., commissioned October 20, 1908, and ordered to the Baltimore Marine Hospital.

Captain H. I. Purnell, U.S.A., ordered from Fort Mackenzie to Manila and to duty as Surgeon of the transport *Thomas* en route.

Captain W. W. Quinton, U.S.A., arrived at New York City on one month's sick leave; granted two months extension of sick leave; ordered before the Washington Promotion Board.

Major Ogden Rafferty, U.S.A., ordered to the Fort Bayard General Hospital for treatment.

Captain C. A. Ragan, U.S.A., granted ten days leave from Fort Monroe.

Lieutenant M. A. Reasoner, U.S.A., relieved from duty as Surgeon of the transport *Thomas*.

Major F. P. Reynolds, U.S.A., in addition to present duties, will take charge of office of chief surgeon, Dept. of Dakota, during the absence of Colonel George W. Adair.

Captain T. L. Rhoads, U.S.A., ordered before the Washington Promotion Board.

Assistant Surgeon Joseph R. Ridlon, P.H.&M.H.S., commissioned October 20, 1908, and ordered to the Marine Hospital at Stapleton, N. Y.

Acting Assistant Surgeon G. A. Riker, U.S.N., appointed October 16, 1908, and ordered to instruction at the Naval Medical School.

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Passed Asst. Surgeon D. E. Robinson, P.H.&M.H.S., granted one month's leave.

Captain E. P. Rockhill, U.S.A., ordered before the Denver Retiring Board.

Acting Asst. Surgeon J. C. Rodman, P.H. &M.H.S., granted ten days leave.

Lieutenant J.L. Sanford, M. R. C., granted one month's leave.

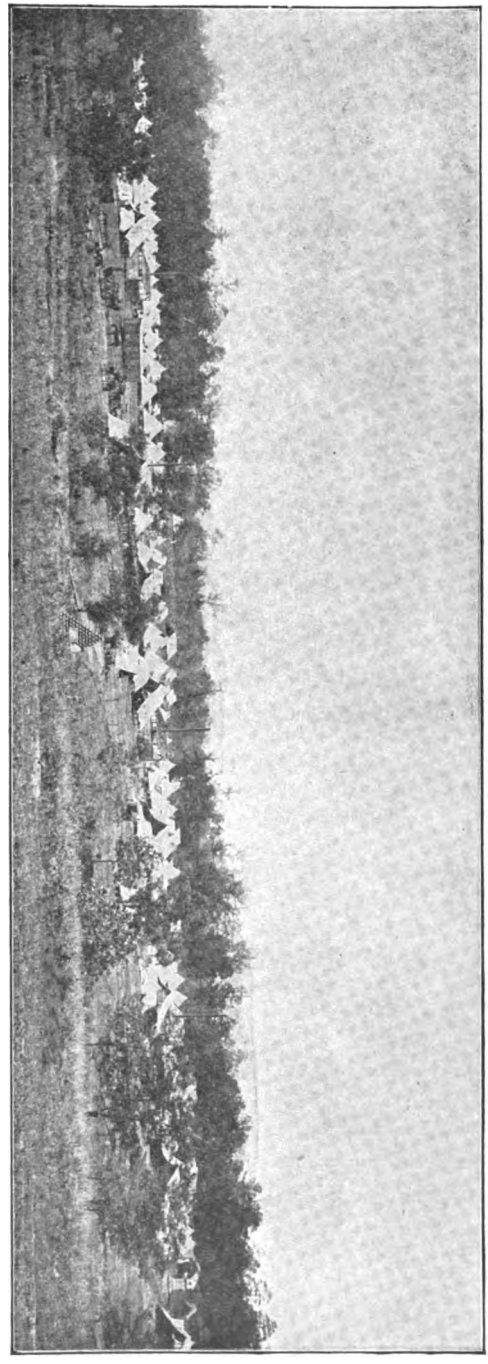
Passed Asst. Surgeon J. W. Schereschewsky, P.H.&M.H.S., reassigned to duty at Baltimore, Md.

Captain G. H. Scott, U.S.A., ordered to the Philippines.

Surg. E. M. Shipp, U.S.N., ordered home from the *Pennsylvania*.

Asst. Surgeon W. H. Short, U.S.N., ordered from the Oklahoma Naval Recruiting Station to the *Macdonough* for duty with the Third Torpedo Flotilla.

Lieutenant John T. H. Slayter, of the medical reserve corps, on duty at Fort William Henry Harrison, Mont., will be honorably discharged from that branch of the medical department under the provision of law for incapacity for duty. The question of the retirement of the officer has been adversely decided on the ground that the Act of April 23, 1908, prohibits the retirement of an officer of the



Twelfth United States Cavalry at Camp Wm. H. Taft, Chickamauga Park, 1908.

Courtesy of Captain James H. McCall.

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medical reserve corps and creates a pensionable status only in the case in which the disability is "incurred in the line of duty while on active duty," in which class the officer cannot be regarded; honorably discharged from the service of the United States.

Passed Assistant Surgeon F. C. Smith, P.H.&M.H.S., ordered to the Hygienic Laboratory for temporary duty.

Lieutenant H. M. Snyder, U.S.A., granted fifteen days leave.

Acting Assistant Surgeon H. H. Stearns, P.H.&M.H.S., granted twenty-eight days leave.

Lieutenant A. V. Stephenson, M.R.C., arrived at San Francisco on the *Sheridan* for treatment at the Army General Hospital; ordered home from San Francisco to wait further orders.

Lieutenant Colonel William Stephenson, U.S.A., promoted from Major, from May 1, 1908, and ordered to the Philippines.

Passed Assistant Surgeon J. Stepp, U.S.N., ordered from the *Denver* home to wait orders.

Lieutenant J. K. Stockard, M.R.C., granted one month's leave about December 5.

Major Paul F. Straub, medical corps, U.S.Army, has submitted a report to the secretary of war of the proceedings of the Esperanto congress held recently in Dresden, Saxony, and which he attended as a delegate. He addressed the Washington Esperanto Society on the subject and told of the great progress made in the use of the new language in foreign countries.

Passed Assistant Surgeon E. A. Sweet, P.H.&M.H.S., granted one month's sick leave.

Captain E. M. Talbott, U.S.A., assigned to duty as commanding officer, Co. A, Hospital Corps, and ordered to Fort D. A. Russell.

Acting Assistant Surgeon J. W. Tappan, P.H.&M.H.S., ordered to Eagle Pass, Laredo, and Brownsville, Texas, and Naco, Douglas, and Nogales, Ariz. upon special temporary duty.

Acting Assistant Surgeon W. R. P. Thompson, P.H.&M.H.S., granted one month's leave, nine days with pay and twenty-three days without pay.

Major A. E. Truby, U.S.A., promoted from Captain with rank from May 1, 1908.

Passed Assistant Surgeon E. A. Vickery, U.S.N., ordered from the Annapolis Naval Hospital to the Boston Naval Hospital.

Acting Assistant Surgeon Pedro Villoldo, P.H.&M.H.S., granted thirty days leave.

Surgeon L. L. von Wedekind, U.S.N., ordered from the *Alabama* to the *South Dakota*.

Captain F. W. Weed, U.S.A., ordered from Plattsburgh Barracks to Fort Totten.

Lieutenant F. M. Wells, M.R.C., ordered to temporary duty at Fort Mackenzie, Wyo.

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Surgeon C. P. Wertenbaker, P.H.&M.H.S., appointed delegate to the meeting of the Virginia State Medical Society at Richmond, Va.

Lieutenant J. M. Wheate, M.R.C., ordered from Fort Yellowstone to Fort Lincoln.

Surgeon L. L. Williams, P.H.&M.H.S., ordered to command the service at Boston, Mass.

Passed Assistant Surgeon M. J. White, P.H.&M.H.S., granted seven days leave.

Assistant Surgeon Charles E. Wood, P.H.&M.H.S., ordered to Baltimore for duty on the *Seneca*.

Surgeon R. M. Woodward, P.H.&M.H.S., ordered to command the service at Detroit, Mich.

Lieutenant J. A. Worthington, U.S.A., ordered from the Presidio General Hospital to duty as surgeon of the transport *Crook*.

Surgeon G. B. Young, P.H.&M.H.S., ordered to Port Huron, Mich., and Milwaukee, Wis., upon special temporary duty.

Captain S. G. Zinke, U.S.A., honorably discharged from the service with one year's pay.

HEALTH OF THE ARMY AND NAVY.—The reports of the health of the Navy in the past year have shown some gratifying results in the absence of sickness which characterize the records of the Army in the same particular. In both services this condition is attributable to the modern methods which take into consideration local conditions and the adequate facilities of sanitary regulations at Army posts and on board ship. The percentage of disabilities in both the Army and Navy is lower than in many years.

RETIREMENT OF MAJOR MEARNS.—*The Army and Navy Journal* remarks: "There has been not unnaturally some curiosity as to the precise circumstances of the retirement of Major Edgar A. Mearns, Medical Corps, U.S.A., who is to accompany President Roosevelt on his African jaunt in quest of big game and literary material. The facts are that Major Mearns was recently in due course ordered before a board at Washington for examination to determine his fitness for promotion. The physical examination which always precedes the mental resulted in the professional determination that the officer has undergone during the last few years while in most active service extensive atrophy of the abdominothoracic muscles involving the epigastric and hypochondriac regions. In addition, symptoms were found of a serious chronic malady which of itself would in a short period of time have rendered retirement necessary. Under the recent act reorganizing the Medical Department, it is provided that should any officer of the corps fail to pass his physical examination and be found incapacitated for service by reason of physical disability contracted in the line of duty, he shall be retired with the rank to which his seniority entitled him to be promoted. On Jan. 1, when six majors of the corps just below him in lineal rank are to be promoted to be lieutenant colonels, Major Mearns will retire with the

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rank of lieutenant colonel. That he goes to Africa when he has been pronounced physically disqualified for active service as a medical officer in the United States Army may appear peculiar to some, but it is to be attributed to the scientific zeal of Major Mearns and it is to be presumed that he knows what he is doing and will exercise every precaution to maintain his health under the arduous conditions that will undoubtedly beset him in the tropics and in the strenuous company of the present Commander-in-Chief of the Army."

THE DISPOSAL OF REFUSE IN TEMPORARY CAMPS.—Major Daniel H. Boughton, Gen. Staff, U.S.A., who attended the encampment of the 56th Regiment of Iowa National Guard at Spirit Lake in July last, in an official report, makes some remarks on the important matter of camp sanitation, which at this camp, he says, reached the highest state of perfection. "I desire to call attention especially to the method of preparing latrines and of handling kitchen waste in temporary camps, for in my opinion these most difficult questions were satisfactorily solved during this encampment. Credit is due to Major William Jepson, one of Iowa's leading physicians. Aroused by the conditions in our camps during the Spanish-American War, he devoted much study to this question with a view of devising some method that would meet the military requirements and still accomplish the object sought.

"As stated by the Major himself, the problem was how to keep the flies from reaching latrine deposits and kitchen waste. Reasoning from a military standpoint—any method to be successful must add little to the transportation, be economical, simple, and of such a character that its purpose could not be easily defeated by carelessness of the men. All these requirements were satisfactorily met by Major Jepson's simple scheme—so simple that one wonders why it was not thought of before.

"Near each kitchen fire a hole eight or nine inches in diameter and six or seven feet deep was dug with a post hole auger. Into the mouth of this hole was fitted a bucket with a wire bottom to catch solid matter as slops were pored in, the top being flush with the surface of the ground and provided with a lid. The liquid matter ran through into these post holes and the solid matter was thrown into a garbage can and then removed in the usual manner by police parties. Instead of a bucket specially prepared to catch solid matter, a piece of wire netting or gunny sack could be used.

"One of these holes sufficed for each company kitchen during the seven days' encampment. The ground where this method was used consisted of about three feet of black loam with a sub-soil of clay, the most difficult ground in which to dispose of liquid waste; nevertheless the method was satisfactory. Sand or gravelly sub-soil is better. If pits are dug with the spade they should be kept covered with pieces of thin muslin or other material.

"Latrines were prepared by digging with the auger a series of holes at the proper distance apart, and also by digging trenches in the usual manner.

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Over these holes or trenches boards with the necessary openings were placed at the proper height, and thin muslin was tacked to the edges, and stretched to the ground where it was pinned with small wooden pegs; covers for the openings were also provided, making the pits absolutely fly-proof. These covers in some cases were made of tin, and in others of thin muslin to which a piece of wood was tacked to hold it over the opening when not in use. Urinals were made by taking pieces of the same cloth coated with gas tar, and suspending them in the form of troughs in rear of the latrine seats. Each trough communicated with the trench by a pipe made of the same material as the trough.

"The latrines were screened from view but left open at the top, and though the deposits were not covered nor disinfectants used, the odor was scarcely distinguishable a few feet away. It was constantly escaping into the air. Latrines of this nature can be readily constructed by troops and at very little cost. The secret is in keeping out the flies. As the deposits were not covered with earth or ashes, a single trench accommodating six seats was sufficient for a battalion of over 200 men during the entire week."

HEALTH OF THE ARMY.—The report of the Surgeon General of the Army for the fiscal year 1907-08 shows that the death rate of the Army from disease, 3.44, is slightly higher than for 1906, 3.28, but is lower than for any other year since 1897. There were 319 deaths from all causes equal to 5.81 per 1,000 of strength. The 65,546 admissions to sick report were at the rate of 1,218.26, compared with 1,276.88 for 1906, and 1,773.86 for the period from 1898 to 1905. The 1,107 discharges for disability were at the rate of 20.15 as compared with 26 for 1906, and 23.43 from 1898 to 1905. Venereal disease, the principal malady next to tuberculosis, kept 668.65 men constantly on the sick report. The rate for tuberculosis is considerably lower than last year and malarial fevers, which come next, show a great improvement.

There were 154 admissions for gunshot wounds, with 34 deaths, and 2,832 admissions for wounds other than gunshot, with 6 deaths. No enlisted men were killed in action during the year; one was wounded, but recovered. Thirty-nine men were drowned, 12 per cent of the deaths from all causes. There were 26 suicides, as compared with 39 in 1906, but the number of homicides in the same period increased from 9 to 17.

There has been a great improvement in the sickness and mortality rates since 1898-99, principally in the group of preventable diseases, except tuberculosis and venereal. The admission rate for typhoid fever in 1907 was 3.87 the lowest of which there is any record in the office; the rate for 1906 was 6.15 and for the eight-year period 1898-1905 it was 15.65. The admission rate for malaria, also the lowest of which there is record, was 63.19, as compared with 107.67 for 1906 and 346.64 for the period 1898-1905. The marked fall in the admission rate for typhoid is particularly gratifying, as this is the disease which in time of war most seriously threatens the effic-

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iency of the Army. The rates for tuberculosis are considerably higher for colored than for white troops, and for troops serving in the Philippines than for those serving in the United States. The discharges for disability were higher for negroes than for whites and the death rate twice as great.

In the order of immunity from disease, Alaska, Hawaii and Cuba came before the United States in the order named. The highest rate was the Philippine Islands. The disease rate among the Filipino troops is considerably lower than for any year since their organization and the death rate one-half that of last year.

The mean strength of officers was 3,477 as obtained from the return of the Medical Department and 3,710 from the Adjutant General. There were 2,090 admissions, 11 deaths, and 102.08 constantly non-effective from all causes. These rates are considerably lower than for last year, and lower than for any year since statistics have been compiled separately for officers. The principal diseases were influenza 64.71, diarrhea and enteritis 37.69, malarial fever 33.36, and bronchitis 31.93. Chronic nephritis caused two deaths; no other disease caused more than one death. There were three deaths from accident.

The number of recruits examined was about five times as great as last year, but the percentage accepted was about the same.

The death and non-effective rates are higher in the United States Army than in any other, and the admission rate higher than in any other except the Dutch army, while the discharges for disability and total loss rates are much lower than for any other army except the British and Belgian. As regards special diseases, the admission rates for alcoholism and venereal disease are much higher in the American Army than in any other, except that for syphilis the British army has a rate almost double that of ours. The rate for malaria is higher than for any other army except the British and Spanish; the rate for tuberculosis is lower than that of a number of armies, but more than twice as great as the rates of Great Britain and Prussia. Typhoid fever gives a lower admission rate than in the British and French armies, but a considerably higher rate than that of Prussia.

THE HEALTH OF THE NAVY.—The annual report of the Surgeon General of the Navy shows that the ratio of morbidity per 1,000 of force was 787.23 in 1906 and 691.40 in 1907. This marked reduction in the morbidity rate is not a coincidence, for the improvement has been progressive and practically uninterrupted for the past twelve years, in spite of a considerable annual growth in naval strength and the fact that a great part of the increase last year was realized within such a short period of time that the receiving stations became dangerously overcrowded.

Attention is called to the fact that notwithstanding increases in the Medical Corps there will still be a deficiency in the supply of medical officers.

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This is especially manifested in the grades of Surgeon and Medical Inspector, in connection with which he recommends a rearrangement in connection with the proposed enlargement.

A further plea is made for the legislation which is pending and which aims to do justice to the members of the hospital corps by establishing an efficient organization. Congress is also urged to enact the measure authorizing the employment of skilled dentists for service in the Navy and reference is made to the need of establishing a medical reserve corps of the Navy similar to that provided for the Army in the law of April 23, 1908.

Special references are made to the fact that provision should be made for the shelter of recruits and crews when on shore, in which connection there is republished some valuable suggestions made by Surgeon L. W. Curtis, fleet medical officer, with the endorsement of Rear Admiral Evans.

Other subjects treated of in the report in the form of comment or recommendation include the transfer of the care of the Naval Home at Philadelphia to the bureau of medicine and surgery in connection with the naval hospital at that place; a plea for greater care in the illumination of ships of war, as well as in the systems of heating and ventilating; a protest against the restriction of physical development to experts, to the neglect of the majority who are in most need of physical development; a statement of the menace of the unsanitary barber shop on board ship with suggestions of practical features to prevent the transmission of contagious disease, the bureau refraining from an endorsement of Surgeon M. J. Blackwood's recommendation that "every man should be required to shave himself and the barber limited to hair cutting;" a pointed remonstrance against the practice of tattooing with the suggestion of an order which shall express absolute prohibition justified by this "type of vaccination conducted with utterly ignorant and condemnable lack of precaution * * * attended by imminent possibility, if not probability, of disastrious consequence to health;" the reminder that "every precaution should be observed that mixtures containing wood alcohol are not left accessible," in view of the three cases of death resulting from the poisonous effects of this chemical; the explanation of the steps taken respecting the visual acuity of gun pointers.

The report contains an account of the cruise of the Atlantic fleet from the standpoint of the medical officer and concludes with a reference to the subject of hospital ships with a reproduction of the usual vital statistics. In closing the report Surgeon General Rixey remarks that the most important of the recommendations which he has made this year concern the reorganization of the hospital corps, the establishment of a corps of dental surgeons, and the authorization of, and appropriation for, two specially constructed hospital ships, and he adds: "These provisions are necessary to complete the equipment of the medical department for a full and efficient discharge of its growing responsibilities."

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Current Literature.

BONNEY'S PULMONARY TUBERCULOSIS.*

SO much professional attention is given today to tuberculosis of the lungs in particular and of other areas in general that an accurate modern work upon the subject is essential to the practitioner. Dr. Bonney's work has been conducted under circumstances peculiarly favorable to observation of tubercular cases, and his book evinces thorough utilization of his opportunities. It is a book evidently written for the practitioner and will find a wide field of usefulness among the profession.

THE NEW YORK POST-GRADUATE FESTSCHRIFT.†

POST-GRADUATE medical instruction has come to be regarded as so much a matter of fact in the United States that it is difficult to realize that a quarter of a century has elapsed since the establishment of the first school devoted to post-graduate instruction. This fact is emphasized by the appearance of the handsome Festschrift, recently issued by the New York Post-Graduate Medical School, consisting of an interesting series of contributions by the faculty, published in sumptuous style and forming a worthy memorial of the important anniversary which they celebrate.

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*Pulmonary Tuberculosis and All Complications. By SHERMAN G. BONNEY, M. D. 8vo; pp. 778, with 189 illustrations, including twenty in colors and sixty X-ray photographs. Philadelphia and London, W. B. Saunders Co., 1908. Cloth $7.00 net.

†Contributions to the Science of Medicine and Surgery. In celebration of the Twenty-Fifth Anniversary, 1882-1907, of the founding of the New York Post-Graduate Medical School and Hospital. By the faculty. Imp.8vo; pp.483, with many illustrations. New York, New York Post-Graduate Medical School, 1908.

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